A HISTORY AND ANALYSIS OF THE EFFORTS OF THE AHTNA PEOPLE OF SOUTH-CENTRAL ALASKA TO SECURE A PRIORITY TO HUNT MOOSE ON THEIR ANCESTRAL LANDS

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A HISTORY AND ANALYSIS OF THE EFFORTS OF THE AHTNA PEOPLE OF SOUTH-CENTRAL ALASKA TO SECURE A PRIORITY TO HUNT MOOSE ON THEIR ANCESTRAL LANDS

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Table of Contents

Page

List of Tables

Table **Page**

List of Figures

Figure **Page**

List of Appendices

Appendix **Page**

Acknowledgments

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Abstract

The purpose of this study is to document the decades-long struggle of the Ahtna people of south-central Alaska to secure the priority to hunt moose in their ancestral lands. The study details the changes in moose hunting regulations in Game Management Unit 13 from the first permit hunt in 1960 to the current era as well as the changes in the number of hunters, number of moose harvests, and success of hunters by area of residence (local vs. non-local). This study summarizes changes in regulations regarding rural preference for subsistence hunters and the court cases challenging those provisions. It outlines the strategies the Ahtna have used over the years to try to secure a priority to hunt moose. It also discusses the importance of moose hunting to the culture of the Ahtna people and the cultural impacts of changes in subsistence harvest regulations. The results demonstrate that under the current management and regulatory structure, Ahtna people and other local residents of the Copper Basin are not getting enough moose and they persistently feel the pressure from non-local hunters. The Ahtna counter this by continually engaging the natural resource management and regulatory process, maintaining subsistence lifestyles, and increasing their wildlife management capacity so that in the future they will have more moose on their land and a greater ability to control this important aspect of their culture. The study also provides recommendations regarding future subsistence moose hunting regulations in the region.

Key words: Ahtna Athabascans, Community Subsistence Harvest, subsistence hunting, GMU 13 moose, Alaska Board of Game, Copper River Basin, natural resource management, wildlife allocation.

1. Introduction

We drove for nearly three hours, on a two-track ATV trail to get to the traditional hunting camp perched on a hill overlooking the Maclaren River Valley. It was the subsistence hunt start date and I was with an Ahtna family I had met four months before while working for the Alaska Department of Fish and Game (ADF&G) Division of Subsistence. I was interested in the state's allocation decisions of subsistence hunting permits in the Copper Basin, so when I was asked by a male elder of the family to go hunting, I took this opportunity.

Our camp provided an excellent viewpoint; not only of the surrounding landscape, but also for the moose and caribou we were hunting. Within a first few hours of setting up camp, we saw three different caribou but the hunters decided not go after them. This made me think that we were actually looking for a moose. As the light diminished from our first day of the hunt, we had not seen any other hunters since we passed about mile six on our nine-mile-long trip to camp that started on the Denali Highway. Surrounded by Alaska's bush with no other humans in sight, I could imagine what it must have been like for the Ahtna people who lived in the area before the contact with Euro-Americans. Today, the area is one of the most popular Game Management Units (GMUs) to hunt big game in Alaska. This has made it tough on the indigenous inhabitants of the Copper River Basin and Upper Susitna River drainage to obtain the meat they have relied on for food and culture for centuries.

Although the allocation of state subsistence hunting permits may seem unfair to the Ahtna, it is a constitutional mandate of the Alaska Board of Game (BOG) to provide sustainable hunting opportunity to all residents of the State of Alaska (state). In 2009, the decades-long debate about rural priority arose again when the Copper Basin Community Subsistence Harvest (CSH) was proposed by the Ahtna Tene Nene' subsistence committee and adopted into regulation by the BOG.

The CSH replaced the Tier II permitting system[1], which had been plagued with public complaints about inequities, unfairness, and false applications (2006-170-BOG). BOG findings revealed that permits from the Tier II system were slowly shifting away from the local Alaskan residents who the BOG identified as the most dependent on the wildlife resources in the region and toward urban residents. The new hunting system, the CSH, was administered by ADF&G and the Ahtna Tene Nene' Subsistence Committee. Just one year later, Alaska's Supreme Court found the CSH to be a local-residency based hunt, which violates sections 3, 15, and 17 of article VIII of the Alaska Constitution. Additionally, the court found that Alaska

[1] The Tier II permitting system is used when it is anticipated that a reasonable opportunity to engage in the subsistence uses cannot be provided to all eligible residents and application are scored to determine who is eligible for the limited number of permits. This permitting system was used for moose in GMU 13 from 1995 – 2008.

Statue [AS 16.05.330(c)] does not authorize the BOG to delegate hunt administration to a private individual or entity. Since this ruling, rural preferences and Ahtna's role in administering the hunt were removed, but parts of the original CSH structure remain.

In the midst of the conflict there has been little to no documentation of the effort the Ahtna had in their attempt to gain the opportunity to harvest subsistence moose in GMU 13 (see Figure 1-1). The purpose of this project is to fill that gap. It will provide an overview of the different management models employed in North America and how local or traditional knowledge in incorporated into management. It will also provide documentation of the history of subsistence moose permitting in GMU 13 — from the first hunt in 1960 until the current situation.

The evolution of subsistence hunting permits in GMU 13 has tested the state's constitution nearly twenty-five years after rural preference was made unconstitutional. This report will also provide information about the human dimensions of the resulting permitting structure and how these data may aid decision makers in future allocative judgements. For the state, the heart of the problem is to find the allocation balance of subsistence hunting opportunity between local and non-local hunters. Alaska's BOG has made a concerted effort to provide hunting opportunity for rural hunters in GMU 13 but the State's constitution has limited the board's effectiveness. For the Ahtna, the heart of the problem lies in a current management and regulatory structure that does not allow them to harvest enough moose to maintain food and cultural security. The Ahtna continue to develop strategies that are making strides in a more self-determining management and regulatory on their lands.

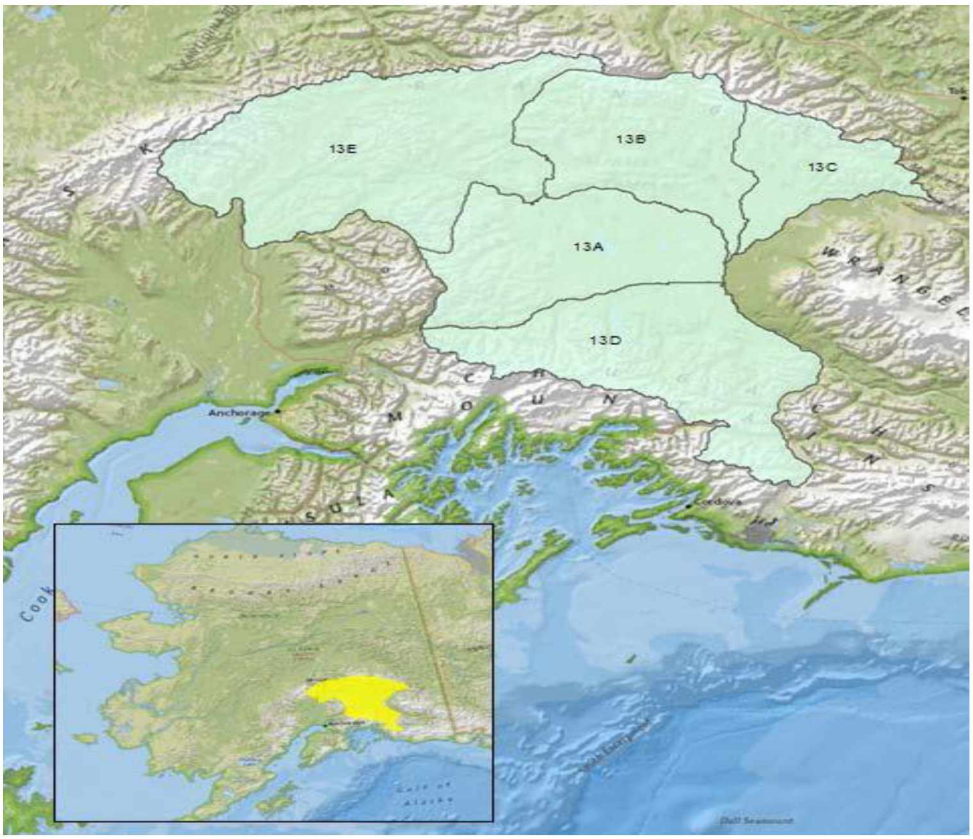

Figure 1-1. Game Management Unit 13

1.1 Research Questions

The following research questions guided my research and will help guide my discussion. My research questions focused on the Ahtna and their claims towards GMU 13 moose and how subsistence regulations affected local residents of Copper Basin communities. In this project, my scope was limited to the Ahtna perspective because the Ahtna have a historical claim towards GMU 13 moose - one that is recognized in subsistence regulations and BOG findings. Their perspective and the history of moose harvesting in the region have not yet been adequately documented.

1. What are the basic arguments or claims that the Ahtna articulate towards maintaining the allocation of GMU 13 subsistence moose?
    - What is Ahtna's historical and geographical context?
    - What strategies do the Ahtna use to retain and regain the management and regulation of GMU 13 moose?
    - According to the Division of Subsistence harvest surveys, are selected Ahtna communities getting enough moose?

2. How has the regulatory history of subsistence moose management in GMU 13 affected Ahtna and other local resident hunter participation and harvest?
    - What is the regulatory history of subsistence moose management?
    - What effect have these regulatory changes had on the human harvest history?
3. What, if anything, could be done at this point to provide for local resident subsistence users?

2. Methods

In this project, I used a case study methodology to document the history of subsistence moose hunting in GMU 13 from 1960 to 2015. Yin (1984) defines a case study as "an empirical inquiry that investigates a phenomenon within its real-life context; when the boundaries between phenomenon and its context are not clearly evident; and in which multiple sources of evidence are used." In addition, he contends that, "case studies are the preferred strategy when "how" or "why" questions are being posed [and] when the investigator has little control over events" (1984). This study meets these criteria because it considers "how" subsistence regulations have changed in the past 50 years, the investigator has little control over events, and the focus is on a current phenomenon.

Multiple sources of data were used, including BOG meeting findings, ADF&G technical papers, ADF&G Division of Wildlife Conservation harvest data, ADF&G Division of Subsistence comprehensive harvest surveys, and ADF&G deliberation materials for BOG meetings. I also incorporated two social science data gathering methods: 1) key respondent interviews and; 2) participant observation. I interviewed and made participant observations to gather qualitative information related to the strategies that Ahtna use to express their claims towards GMU 13 moose. In this research, I was guided by ethical principles for human data collection outlined in the social sciences, which include informed consent, anonymity of participants, and directly informing participants of research findings. I also followed the Institutional Review Board (IRB) policy governing human subject research.

I spent a total of five weeks in the Copper River Basin between 2013 and 2015 where I conducted harvest surveys, participated in subsistence activities with an Ahtna family, interviewed key respondents, and attended meetings. This provided a human dimension context, which is useful for decision makers in the subsistence moose allocation decision. Specifically, I participated in subsistence harvest surveys in the communities of Gulkana, Tazlina, Chitina, Lake Louise and Tonsina. I also attended one CSH subcommittee meeting and one BOG meeting while working as a Graduate Intern for the Division of Subsistence, ADF&G.

During my time administering subsistence harvest surveys in five different Copper Basin communities, I identified key respondents of local resident communities (e.g. the community coordinators and designated hunters) who were very familiar with the CSH and its implementation. However, several key respondents who were identified as knowledgeable either declined to be interviewed or did not return correspondence. As a result of this limited availability of respondents, as well as time restraints overall, I interviewed two respondents.

Due to IRB policy, all of the respondents in my research are kept confidential so I will refer to the two selected respondents as Designated Hunter A and Designated Hunter B. They are both longtime residents of the Copper Basin and not only participate in the CSH but also take part in the local harvest of other wild resources. Designated Hunter A is a male Ahtna elder who was born, raised, and still resides in the Copper Basin. I met him while administering a harvest survey. He agreed to be interviewed and also invited me on a CSH moose hunt, which I participated in August 2014. Designated Hunter B is a young Ahtna male that was raised and still resides in the Copper Basin. He is part of the same CSH community as Designated Hunter A and he helped lead the CSH moose hunt in which I participated. Designated Hunter A and B also invited me to stay in their village to participate in fish and cultural camp activities. During this time, I was able to spend time with their extended family and other Ahtna people.

The first research question focuses on the basic strategies that Ahtna use to articulate their claim towards GMU 13 moose. To answer this question, I documented the ways Ahtna express their argument during BOG meetings, key respondent interviews, and participant observations. Many Ahtna tribal members are involved in the public resource planning process. Public testimony and deliberations from the 2015 BOG meeting in Wasilla provided an open forum for Ahtna to explain their perceived rights to the resource. Around 25 Ahtna tribal members participated in the public testimony of the 2015 BOG meeting in Wasilla. I documented the strategies they used to try to gain additional allocation rights and their satisfaction with current allocation outcomes.

I used harvest surveys to consider whether or not Ahtna communities are satisfied with current regulations and the opportunity that they provide. Assessment questions in harvest surveys ask whether or not households get enough of a resource and to rate the impact of not getting enough. Additionally, Subsistence moose harvest data by each Ahtna community was gathered to determine the amount these communities have harvested in the past and to estimate what they may need in the future. It should be noted that the data from surveys did not differentiate between ethnicities. All resident of Ahtna communities were lumped into one data set. However, the Alaska Native population percentage was determined and ranges from 16% in Cantwell (Holen et al. 2014) to 70% in Gulkana (Holen et al. 2015).

The second research question concentrates on documenting the GMU 13 moose regulatory history and analyzing its effects on local hunter participation and harvests. I gathered descriptive statistics and have provided data visualizations of moose hunter numbers and harvests by residence in GMU 13. This data came from Winfonet, a data base sponsored by ADF&G that catalogs fish and game harvests. Quantitative moose population trend data, to compare with regulations, hunter participation, and harvests, was difficult to obtain. ADF&G moose management reports are available online but they do not provide a unit-wide continuous population data set. The most recent moose management report is 2012 (Schwanke) and continuous count data from this report only goes back to 2001. The moose management report does provide a qualitative review of the moose population trend, which I use in comparison with regulations, hunter participation, and harvests.

The third and final research question will provide a discussion about the possible future management and regulations of subsistence moose in the Copper Basin based on the results of my research. As a well-informed outsider, I will offer alternative options to help balance the subsistence moose hunting opportunity in GMU 13.

3. Background Information

Alaska's rural residents harvest about 18,000 tons of wild foods each year - an average of 295 pounds per person (Fall 2014). Fish makes up about 56 percent of this harvest statewide. Nowhere else in the United States is there such a heavy reliance upon wild foods. This dependence on wild resources is cultural, social and economic. Alaska's indigenous inhabitants have relied upon the traditional harvest of wild foods for thousands of years and have passed this way of life, its culture, and values down through generations. Subsistence has also become important to many non-Native Alaskans, particularly in rural Alaska.

Sustainably managing wildlife species with diverse user groups is one of the greatest challenges for contemporary wildlife management agencies (Brown et al. 2015). Management decisions are especially difficult in the Copper River Basin because rural populations still rely heavily on wildlife. Residents also live on the road system and feel the competition for wildlife resources from urban hunters.

In North America, decision makers allocate wildlife species for the common-use of all individuals. Alaska is unique because many rural residents rely on the seasonal harvest of wild game to maintain food security (Loring and Gerlach 2009). In 1978, the Alaska Legislature even created a statute that ensured subsistence users a priority to harvest wildlife species. Under state law, only rural residents qualified for subsistence harvesting from 1978-1989. Since 1989, all state residents have qualified under state law.

Although rural residents may rely more on wildlife for cultural and economic reasons, many families in urban centers like Anchorage consume wild caught fish and game, even if they did not harvest it themselves. Alaska has not experienced the sharp declines in hunter activity observed in the continental United States (Brown et al. 2015). However, Alaska is undergoing socioeconomic and cultural transitions. For example, rural residents of the state are increasingly moving to urban centers so areas accessible along the road system have become increasingly important to hunters throughout the state.

In interior Alaska, moose (*Alces alces*) are the primary subsistence resource and moose hunting has been identified as an important cultural and recreational activity to hunters throughout the state (Brinkman et al. 2013). As Alaska's population continues to change, managers will likely see more competition between moose hunters along road systems. Nowhere will this be more apparent than in the Copper River Basin, which is accessible via four state maintained highways, supports a healthy moose population, and is home to around 3000 residents.

The following information provides a synthesis of wildlife management in North America, Alaska, and Canada. This background is useful in understanding the reasons why wildlife is regulated and allocated differently in these locations. Additionally, a short synthesis of the human dimensions of wildlife management is discussed, which is helpful in understanding the concept and how it is used to wildlife management. Also, Ahtna geographical and historical context is provided for the basis of the claims that the tribe makes towards retaining and regaining resource access rights.

3.1 North American Model of Wildlife Management

The Public Trust Doctrine (PTD) is incorporated in Alaska's constitution and it is also an essential foundation of the "North American Model for Wildlife Conservation" (Geist 1995). Basically, a trust is a collection of assets committed or entrusted to one to be managed or cared for in the interests of another. The party to whom the trust assets are committed is commonly referred to as the trustee, whereas the party for whom the assets are being managed is referred to as the beneficiary of the trust. The PTD establishes a trustee relationship of government to hold and manage wildlife, fish, and waterways for the benefit of the resources and the public. Fundamental to the concept is the notion that natural resources are deemed universally important in the lives of people, and that the public should have an opportunity to access these resources for purposes that traditionally include fishing, hunting, trapping, and travel routes (Organ 2010).

The North American Model of Wildlife Conservation has seven distinctive components (Geist et al. 2001):

1. Wildlife as a public trust resource.

2. Elimination of markets for wildlife.
3. Allocation of wildlife by law.
4. Wildlife can only be killed for a legitimate purpose.
5. Wildlife is considered an international resource.
6. Science is the proper tool for discharge of wildlife policy.
7. Democracy of hunting.

This model is viewed as an important basis for laws overseeing the protection, conservation, and restoration of wildlife populations in the U.S. and Canada. However, the underpinnings of the PTD and the future relevance and successful application of the Model may be at risk due to recent changes in society, government policies, and case law (Organ and Mahoney 2006). The social and political dynamics of wildlife management have changed since the emergence of state wildlife management in the mid-to-late 1800s when the North American Model was developed.

Several problems have been identified that directly or indirectly challenge the North American Model (Geist and Organ 2004). Threats include the need for consistent sources of funding for wildlife management to offset the revenue decline from license sales as the number of hunters and trappers decline; increased interest from nontraditional stakeholders for better access to and involvement in the decision-making process; and demands from society for expansion of services provided (Jacobson and Decker 2006). These problems may undermine existing state laws, policies, and programs that are modeled after the PTD.

Concerns regarding these problems have led to the development of an alternative model. Advocated on grounds of efficiency and sociopolitical equity, the alternative resource management model has one major theme: the devolution of at least some central management power to local/indigenous people. In several cases, devolution has succeeded in alleviating rural poverty, reducing the cost of state administration, and lessening some of the conflict associated with resource harvesting (Edmunds and Wolenberg 2003). The Human Dimensions of wildlife management has emerged in the last thirty years and recognizes the social issues that affect ecological systems and analyzes this data for decision makers.

3.2 Human Dimensions of Wildlife Management

The concept of "human dimensions of wildlife" deals with assessment and application of social information in wildlife decision making (Manfredo et al. 1998). It is the science of human systems within ecological systems and it has the potential to bridge the gap between managers and social scientists to better manage wildlife. The assessment component of human dimensions deals with the broad array of concepts and techniques used to understand human thought and action toward wildlife. This includes a

wide variety of social science discipline - for example anthropology, economics, sociology, political science, and psychology. Within wildlife management agencies, assessment functions have primarily included surveys, focus groups, key respondent interviews, participant observations, and techniques to facilitate public involvement (e.g. stakeholder processes of the Board of Game).

Human dimensions offer tools that improve managers' abilities to represent the public in decision making. In Alaska, the tradition of wildlife management has led to a strong alliance among hunters, hunting industry, and wildlife professionals. However, non-consumptive interests have emerged, as well as the continued claim that Alaska Natives and other rural subsistence users maintain towards wildlife resources. In the case of managing subsistence moose permits, the challenge for wildlife managers and decision makers is to work within the constitutional and regulatory framework to provide sustainable opportunity for all.

Alaska's wildlife management agency is unique in the nation as it has a Division of Subsistence that collects human dimension data and its research aids decision makers in the allocation of natural resources. This research has been used in the past to substantiate subsistence practices and to provide reasonable opportunity for subsistence users. This is different from the prevailing standard. No other state has subsistence regulations and few, if any, maintain social research divisions that collect human dimension data.

3.3 Alaska's Wildlife Management Model

Among the models for wildlife management in North America, federal and state law in Alaska has produced a hybrid wildlife management. In Alaska, the need for incorporating human dimensions in state fish and game regulations was addressed by the 1978 statute that created the division of subsistence. Subsistence hunting and fishing was defined under this statute as "customary and traditional uses" [AS 16.05.258]. The law directs the division to compile existing data and conduct studies to gather information, including data from subsistence users, on all aspects of the role of subsistence hunting and fishing in the lives of the residents of the state. The other statutory responsibilities of the division include assisting the boards in identifying customary and traditional (C&T) uses of fish wildlife resources, and providing data for the boards to establish the "amounts reasonably necessary for subsistence" (ANS).

The BOG is the state's regulatory authority that passes regulations to conserve and develop Alaska's wildlife resources. The BOG is charged with making allocative and regulatory decisions. The board has seven members, each appointed by the governor for a three year term. Each member must be confirmed by a joint session of the state legislature.

Advisory committees are the local grass roots groups that meet to discuss fish and wildlife issues and to provide recommendations and regulation proposals to the boards. There are 84 committees throughout the state each with expertise in a particular local area.

The Department of Law, and specifically the Natural Resource Section of the Civil Division, provides legal advice and represents the State Departments and Boards that regulate Alaska's lands, waters, and renewable natural resources, including ADF&G and the Boards of Fisheries and Game. The Natural Resource section helps to ensure that the state's natural resources are managed and allocated by state agencies in a manner that is consistent with the law, defends against legal challenges to actions taken by the state's natural resource agencies, and pursues legal actions against persons who are illegally using, damaging, or destroying Alaska's lands, waters, or renewable natural resources.

In addition, Title VIII of the federal Alaska National Interest Land Conservation Act (ANILCA), passed in 1980, also mandated a subsistence priority. It defined an allocation preference for rural Alaskans in times of scarcity. This did not mean that urban residents did not need or could not obtain wild resources, but that rural residents' needs would be met first if there were shortages.

In December 1989, the Alaska Supreme Court ruled in the McDowell Decision (Alaska 1989) that Alaska's subsistence law granting a priority based solely on residency is inconsistent with the "common use" clause and other sections of article VIII of the Alaska Constitution. The ruling placed the state out of compliance with ANILCA and consequently in 1990 federal agencies adopted separate subsistence hunting regulations. A dual management structure began with the federal government regulating subsistence on federal lands and the state retaining authority over state and private lands (which consist primarily of Alaska Native lands). Although Alaska's subsistence policy may be unique, most Alaska Natives are not satisfied and continue to engage the resource policy process to ensure their legal right to participate in subsistence activities.

In response, many collaborative management schemes have been adopted in the state, which include The Alaska Migratory Bird Co-Management Council, Yukon Flats Cooperative Moose Management Plan, and the Alaska Beluga Whale Commission. However, the equal presence of Alaska Natives on either the federal or state regulatory boards is not mandated like it is in neighboring Canada where seats are mandated for First Nation participants. Instead, these collaborative approaches are created to improve participation and science at the local scale by incorporating TEK.

3.4 Determining State Subsistence Allocations and Subsistence Permitting Systems in Alaska

The regulatory approach for management of species with C&T uses has added another dimension to the allocation of wildlife resources. Once the BOG has determined that there are C&T uses of a game population they must provide a subsistence permitting system and set the ANS. The two subsistence permitting systems offered by the state are Tier I and II. These permits are available to Alaska residents only. Tier I hunts are used where it is anticipated that a reasonable opportunity can be provided to all residents who desire to engage in that subsistence use, so everyone is issued a permit. Tier II permits are used where it is anticipated that a reasonable opportunity to engage in the subsistence us cannot be provided to all eligible residents, and application are scored to determine who is eligible for the limited number of permits.

To set the ANS, the BOG relies on harvest data provided by the Divisions of Subsistence and Wildlife Conservation to help guide them. This process directs ADF&G with specific management guidelines. If the harvestable surplus of a game population is within the ANS range, the department may issue subsistence registration permits (Tier I) and apply discretionary conditions to the hunt consistent with the C&T use pattern (e.g. no use of aircraft, trophy value must be destroyed, etc…). If the harvestable surplus is less than the ANS, the department may issue Tier II subsistence permits and apply discretionary conditions to the hunt consistent with the C&T use pattern. If harvestable surplus is greater than the ANS then the department may issue subsistence registration permits (Tier I) and apply discretionary conditions to the hunt consistent with the C&T use pattern and may issue general drawing permits to take additional animals.

A CSH is considered a Tier I registration permitting system. It is a cooperative mode of hunting and distributing of wild resources based on traditional Alaska Native practice - where typically a few men hunted for the entire village and shared the meat. These practices are quite different from conventional management practices in Alaska, where a single hunter is allocated one moose per hunt. In the CSH, a single hunter may harvest several moose and distribute the meat across many households within a community.

In 2000, the BOG established the first CSH in the Yukon Flats to allow individuals to harvest more than one moose. The objectives of the Yukon Flats CSH were to better accommodate traditional subsistence practices, including one person hunting for many and sharing the meat. The BOG also hoped the CSH would improve harvest reporting in rural/Native communities.

The Yukon Flats CSH permitting system was not used by hunters after 2003 and participation in the hunt from 2000-2011 was poor. Although cooperative hunting remains a common harvest method, complex enrollment and reporting requirements deterred official enrollment in the Yukon Flats CSH (Van Lanen et al. 2012).

In 2009, the Board of game accepted a proposal to create a second CSH in the Copper River Basin, which provided rural residents extended access to general season moose and caribou as well as "any bulls." Any bull moose are males that do not meet general season antler restrictions. It was proposed by the Ahtna Tene Nene' Subsistence Committee because young and new Copper Basin residents were not able to obtain Tier II subsistence permits (Fall and Simeone 2010). This unique hunting program provided rural residents of the Copper River Basin a longer harvest season and the opportunity to harvest any bull moose. It also contained customary and traditional practices such as designating specific hunters for communities or groups and strict salvage requirements. However, in 2010, Alaska's Supreme Court found the CSH to have a local preference in its regulations, which goes against Article VIII of Alaska's constitution. Today, the CSH remains a subsistence permitting system for GMU 13, but no longer requires residency in that region in order to participate.

3.5 Federal Wildlife Management Model in Alaska

The Federal Subsistence Management Program is a multi-agency effort to provide the opportunity for a subsistence way of life by rural Alaskans on federal public lands and waters while maintaining healthy populations of fish and wildlife. Subsistence fishing and hunting provide a large share of the food consumed in rural Alaska. All communities and areas of Alaska are considered rural and receive a preference towards harvesting on federal lands except residents residing in: the Anchorage Municipality, Fairbanks North Star Borough, Homer area, Juneau area, Kenai area, Ketchikan area, Prudhoe Bay, Seward area, Valdez, and Wasilla/Palmer area. Rural residents must have their primary, permanent place of residence in a rural area to qualify to hunt, trap or fish under Federal Subsistence regulations. The Federal Subsistence Board determines the rural vs. non-rural status of a location.

The Alaska National Interest Lands Conservation Act, passed by Congress in 1980, mandates that rural residents of Alaska be given a priority for subsistence uses of fish and wildlife. In 1989, the Alaska Supreme Court ruled that ANILCA's rural priority violated the Alaska Constitution. As a result, the Federal government manages subsistence uses on Federal public lands and waters in Alaska-about 230 million acres or 60 percent of the land within the state. To help carry out the responsibility for subsistence management, the Secretaries of the Interior and Agriculture established the Federal Subsistence Management Program.

The program provides for public participation through the Federal Subsistence Board and 10 Regional Advisory Councils. The Board is the decision-making body that oversees the program. It is made up of the regional directors of the U.S. Fish and Wildlife Service, National Park Service, Bureau of Land Management, Bureau of Indian Affairs and U.S. Forest Service. Three public members (one of whom serves as chair) are appointed by the Secretary of the Interior with concurrence of the Secretary of Agriculture. The Regional Advisory Councils provide recommendations and information to the Board; review proposed regulations, policies and management plans; and provide a public forum for subsistence issues. Each Council consists of residents who are knowledgeable about subsistence and other uses of fish and wildlife resources in their region. The chairs of the Regional Advisory Councils and a representative of the State of Alaska are liaisons to the Federal Subsistence Board.

3.6 The Co-management Model in Canada

Another hybrid to the North American Model for Wildlife Conservation exists in Canada. The co-management model has developed to include the First Nation Peoples into the decision making and management of wildlife and other resources. This is important for Indigenous peoples around the world seeking an equal seat on decision making boards where allocations are made.

Collaborative management or co-management has been defined as the sharing of power and responsibility between the government and local resource users (Berkes 1991). The World Bank has defined co-management as the sharing of responsibilities, rights and duties between the primary stakeholders, in particular, local communities and the nation state; a decentralized approach to decision making that involves the local users in the decision making process as equals with the nation state (The World Bank 1999).

In Canada, the Yukon Umbrella Final Agreement and existing First Nations final agreements provide for co-management. Among the formal objectives are to integrate the relevant knowledge and experience both of Yukon Indian People and of the scientific communities in order to achieve conservation and to enhance and promote the full participation of Yukon Indian people in Renewable Resource Management (Council of Yukon Indians 1993). This agreement created the Yukon Fish and Wildlife Management Board and fourteen renewable resources councils. The board is considered a co-management body because the Council for Yukon First Nations and the Yukon Territorial Government each appoint one-half of its members. Its mandate is to make recommendations directly to the Yukon minister of renewable resources regarding any aspect of fish and wildlife management throughout the territory.

Some Yukon First Nations are taking steps to revitalize traditional forms of management systems that are more reflective of First Nation values (Natcher and Davis 2007). The Northern Tutchtone Council is now

in the process of re-implementing traditional laws related to the use and occupation of settlement lands. Referred to as Doo'Li, or a spiritually driven form of traditional law, these rules are now being recorded and applied to the management of the region. Traditional knowledge specific to land management, Doo' Li is considered by leadership as being essential to adaptive management in a changing world and their successful transition to self-governance. However, the Canadian co-management approach does not work on state lands in Alaska, due to the requirement that all citizens be treated equally regarding access to natural resources.

3.7 The Ahtna: Geographical and Historical Context

Traditional Ahtna territory comprises 23,000 square miles (Figure 3-1), including the Copper River Basin, upper portions of the Susitna River Drainage, and the rich hunting grounds surrounding mountains where moose, sheep, and caribou are present. The mountains form a boundary between the Ahtna, other Athabaskan groups, and the Tlingit. To the east of the Copper River Basin are the Wrangell Mountains, separating the Ahtna from the northern Tlingit who shared sheep hunting grounds with the Ahtna while keeping to their side of the Wrangell Mountains (McClellan 1975). The Mentasta Mountains separated the Ahtna from the Tanana Athabaskans. The Copper River flows from its head waters in the Wrangell Mountains south through the Chugach Range on its way to Prince William Sound. The Chugach Range forms a boundary between the Ahtna and both the Chugach Alutiiq and the Eyak of Prince William Sound and the Copper River Delta.

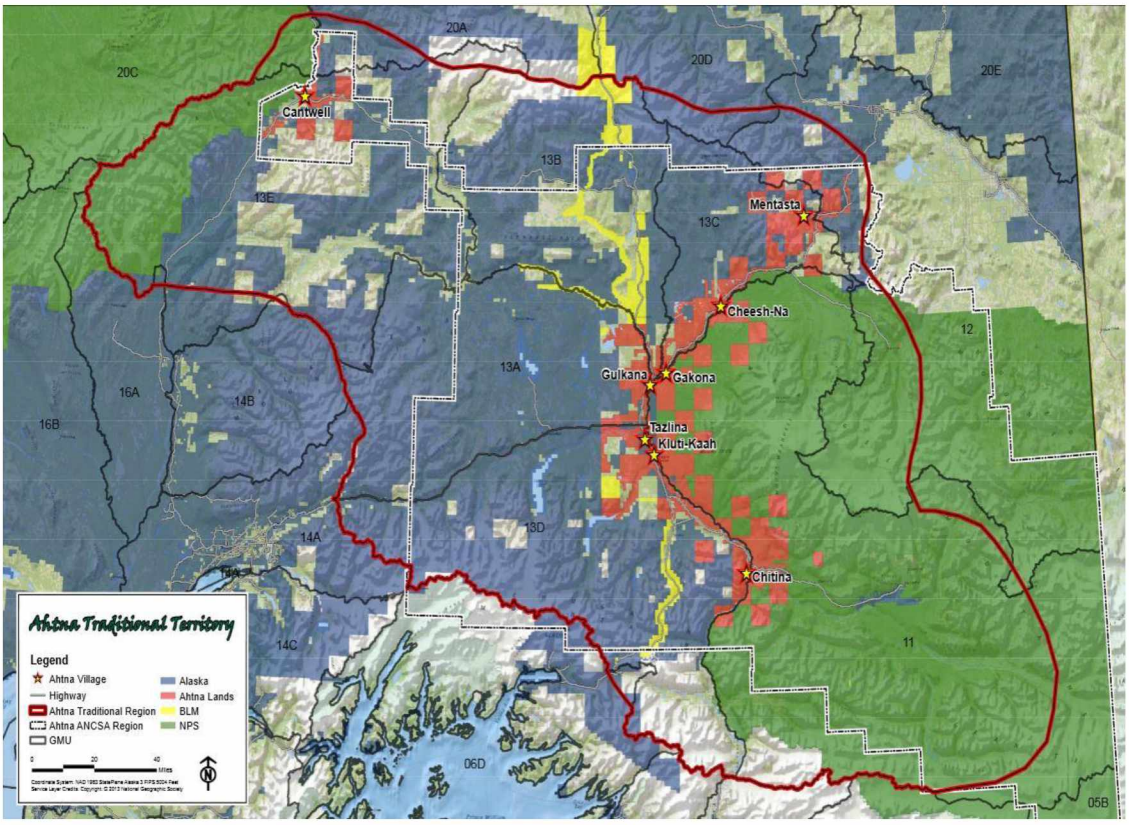

Figure 3-1. Ahtna Traditional Territory

Source: http://ktoo.wpengine.netdna-cdn.com/wp-content/uploads/2014/03/Ahtna-Traditional-Territory.jpg

Geographically, the Ahtna were not completely isolated on all sides from their neighbors (Figure 3-2). To the northwest the Ahtna had shifting boundaries in the open high country of the Upper Nenana Valley with the Lower Tanana Athabaskan people, resulting in territorial conflict as well as social engagement. To the south and west is a more fluid boundary shared with the Dena'ina (Tanaina) Athabaskans with whom the Ahtna have cultural and linguistic similarities. Both groups utilized the Susitna River area for large game, particularly caribou, and have maintained relatively friendly relations with one another. The Ahtna traded inland resources such as skins, furs, and copper with the Dena'ina Athabaskans for rich marine resources of Cook Inlet.

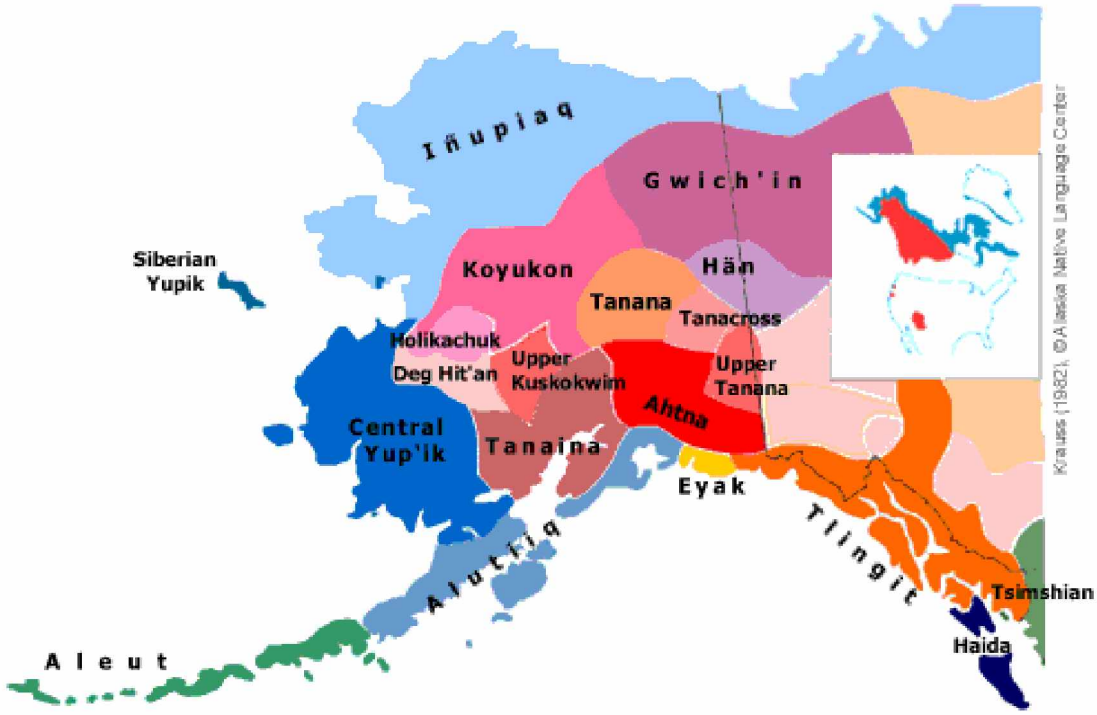

Figure 3-2. Alaska Native Tribes and Boundaries
Source: Kraus 1982. Alaska Native Language Center.

The Ahtna of the Copper River Basin are geographically divided into four groups: the Lower, Central, Upper, and Western Ahtna (Kari 1986). The Central Ahtna, once seen as part of the Lower Ahtna, are near the confluence on the Copper River and the Gulkana and Gakona Rivers. The Lower Ahtna are centered on the lower Copper and Chitina Rivers near present-day Chitina. The Upper Ahtna include modern day Chistochina and Mentasta. The Western Ahtna , were orientated toward the Talkeetna mountains and the Susitna River drainage, encompassing a large area stretching from Paxson to the modern town of Cantwell at the boundary of Denali National Park. The division between these groups was noted by early Russian explorers who recognized a distinction in the dialects but not the culture of the four groups. The dialect distinction in their common language is also reflected in their differing subsistence patterns. The Lower and Middle Ahtna were characterized by the prevalence of salmon in their diet and the Upper and Western Ahtna by the utilization of land mammals and whitefish in their subsistence economies (de Laguna and McClellan 1981).

In the summer, the Lower and Central Ahtna fished for salmon on the Copper and Chitina Rivers and their tributaries. Chinook salmon, the largest of the salmon on the Copper River, arrived first. Coho salmon, the least preferred salmon species, arrived later and only in the Lower Copper River. The major

fish harvested were sockeye salmon that would start running in mid-May to early-June, with some later runs continuing into early September.

In the fall, as the daylight diminished, the Ahtna would head to other hunting camps. Caribou were available in the foothills of the Mentasta Mountains to the east and of the Talkeetna Mountains to the west. Camps were set up at higher elevations to hunt caribou and moose and to establish a staging point for expeditions into the mountains for sheep and goats. These activities occurred from early September to late November when daylight diminished to the point where it was no longer feasible to spend long hours hunting.

Caribou and moose hunting methods used in the Ahtna territory were very similar to those used by other Alaska Native groups. Especially in the Talkeetna Mountains, which Ahtna shared with the neighboring Dena'ina, caribou and moose brush fences were constructed. Once the animals were driven into the fence they were speared, shot with arrows, or entangled in snares (de Laguna and McClellan 1981).

Late summer and early fall were also the times for picking berries. There are many types of edible berries available including raspberries, blueberries, and high-bush cranberries. The seasonal migration of waterfowl also occurred during the fall and the month of September was spent hunting ducks and geese.

The period in mid-winter from December to February was the time for a variety of subsistence activities. Small escapades were undertaken to hunt moose and small game such as hares and ptarmigan. During this time trapping of fur-bearers such as beaver and fox occurred. Fishing for lake trout, grayling, and whitefish was also undertaken on the many lakes of the Copper River Basin. If the salmon runs had been good the previous summer, there was a great deal of visiting and many potlatches occurred. For many Athabascan peoples, springtime could be a time of hunger because the winter stores were depleted. During this period there was intensification on the hunting of moose, fishing freshwater lakes, and the trapping of beaver. With the first arrival of the sockeye salmon in the spring, the cycle was repeated.

3.8 Trends in Human Population, 1940s to Present

Beginning in the mid-20th century, use of Ahtna traditional territory (GMU 13) became popular for the growing populations of Anchorage, Fairbanks, and the Matanuska-Susitna Valley (Fall and Simeone 2010). As shown in the table and figure below, the populations of these three urban areas increased almost seven times during the period considered in this study. During this same period, the population of the Copper River basin remained relatively stable. In 2010, approximately 23% (678 of 2,952) of the Copper Basin's population was Alaska Native, primarily Ahtna (U.S. Census Bureau 2010).

Population projections from the Department of Labor and Workforce Development (2014), predict that population trends that we are seeing today will continue into 2042. Urban centers connected to Alaska's road system will continue to grow while the Copper Basin communities, which are inside the Valdez Census Area, will remain relatively stable. The issues that Ahtna and other locals express in BOG meetings will likely be exacerbated with the increasing population of urban areas connected to the road.

Table 3-1. Population of Copper River Basin Communities and Major Urban Areas Connected by the Road System in Alaska

Year	Copper River Census Subarea	Anchorage Municipality	Matanuska-Susitna Borough	Fairbanks North Star Borough	Southeast Fairbanks Census area	Valdez	Alaska
1818	567						
1839	300						
1880	250						33,426
1890	ND						32,052
1900	ND					315	63,592
1910	553		677	7,675		810	64,356
1920	511	1,856	158	2,182		466	55,036
1930	729	2,277	848	3,446		442	59,278
1940	742	3,495	2,354	5,692		529	72,524
1950	808	11,254	3,534	19,409		554	128,643
1960	2,193	54,076	2,320	15,736	605	555	226,167
1970	1,852	124,542	6,509	45,864	4,179	1,005	302,583
1980	2,721	174,431	17,816	53,983	5,676	3,079	401,851
1990	2,763	226,338	39,683	77,720	5,913	4,068	550,043
2000	3,231	260,283	59,322	82,840	6,174	4,036	626,931
2010	2,952	291,826	88,995	97,581	7,029	3,976	710,231
2014	2,798	300,549	98,063	97,972	6,963	4,097	735,601

Source: U.S. Census (2010)

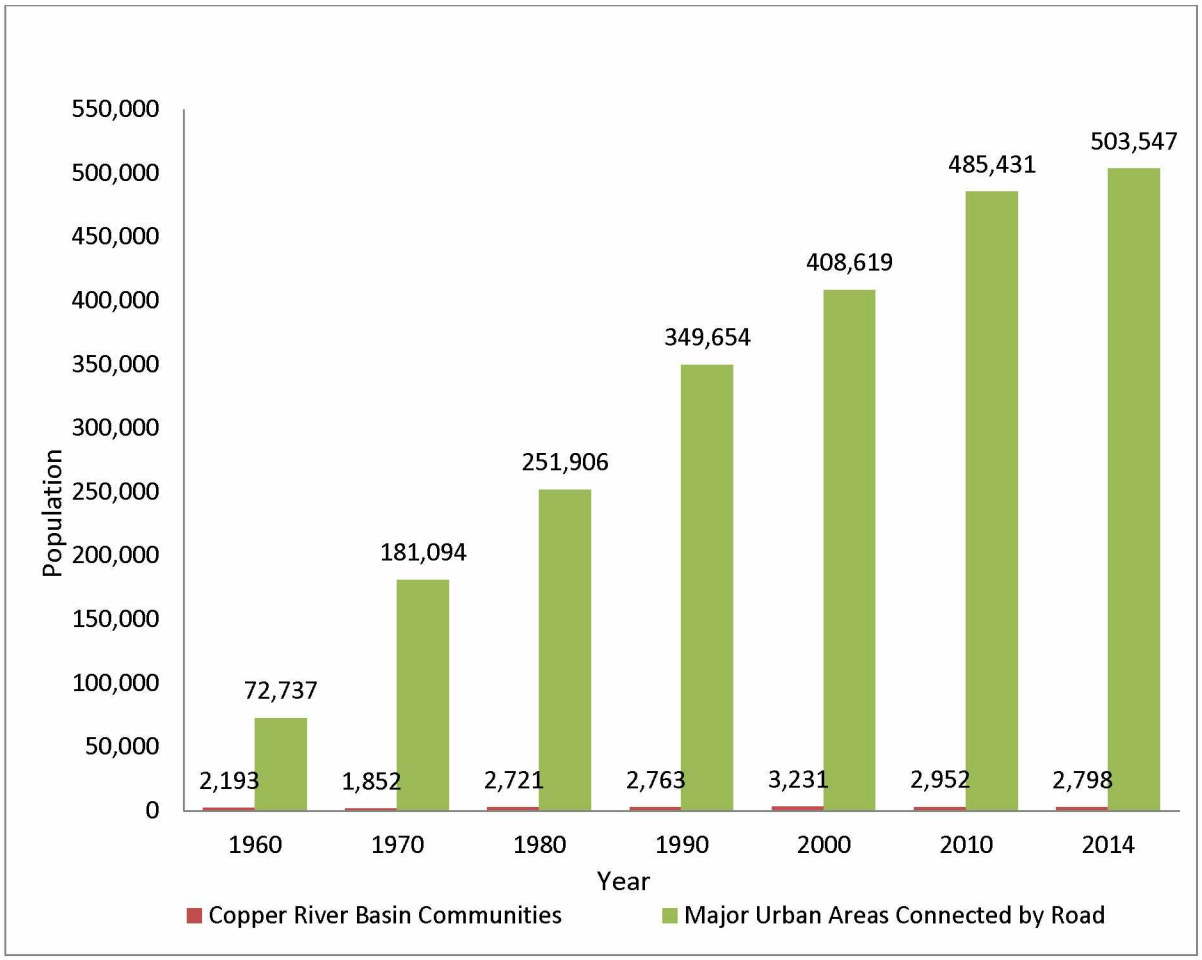

Figure 3-3. Population of Copper River Basin Communities and Major Urban Areas Connected by the Road System in Alaska

3.9 Contemporary Ahtna

With the discovery of oil in Prudhoe Bay in the late 1960's, Alaska rushed to settle the status of its lands. The Alaska Federation of Natives was formed in 1966 to halt state land selection for oil exploration and to lobby for a final settlement and title to Alaska Native lands. The outcome, Alaska Native Claims Settlement Act (ANCSA) of 1971, gave Alaska Natives 962 million dollars and fee simple title to 40 million acres to be administered by 220 village and 13 for-profit corporations. Ahtna Inc. was the for - profit Regional Corporation in the Copper River Basin formed under ANCSA. It is the smallest of the Alaska Native Regional Corporations established by Congress and it is headquartered in Glennallen, Alaska. Unlike other regions, the eight Ahtna villages all lie on the road system.

Ahtna Inc. has numerous subsidiaries including activities related to construction, pipeline maintenance, service contracts, timber management, and real estate. The board of directors for Ahtna Inc. includes members from seven villages in the Copper River Basin. Ahtna, Inc. is owned by nearly 1,900

shareholders, the majority of whom are of Ahtna Athabascan descent, with many still residing in the Ahtna region.

Ahtna, Inc. holds fee simple title to approximately 1,528,000 acres of land conveyed in December 1998 from an entitlement of 1,770,000 acres (Athna-Inc: About Us). Much of this land is located in the Ahtna region, which is roughly the size of the state of Ohio. In addition, most of the land has been selected along the around the Ahtna communities and the Highways that connect them. This was done, in part, because of the income-generating potential of the adjacent lands. As an Alaska Native and shareholder-owned corporation, Ahtna, Inc. remains committed to its vision and mission statements, with a goal of preserving, strengthening, and enhancing a cultural identity that has existed for thousands of years. Ahtna's efforts are aimed at providing a broad range of opportunities for shareholders, continued business growth and diversification, as well as effective management of all Ahtna resources.

Today, Athabascans live throughout Alaska and the Lower 48, returning to their home territories to harvest traditional resources. In traditional and contemporary practices, Athabascans are taught respect for all living things. An important part of Athabascan subsistence living is sharing. All hunters are part of a kin-based network in which they are expected to follow traditional customs for sharing in the community.

3.10 Economic Importance of Subsistence Resources

Subsistence fishing and hunting are a principle characteristic of the rural Alaska economy (Fall 2014). Subsistence is part of an economic system call a mixed, subsistence-market economy. Families invest money into small-scale, efficient technologies to harvest wild foods, such as fish wheels, ATVs, and guns. Subsistence food production is directed toward meeting the limited needs of families and small communities, not market sale or accumulated profit as in commercial market production. Families follow an economic strategy of using a portion of the household monetary earnings to capitalize in subsistence technologies for producing food. This combination of money from paid employment and subsistence food production is what characterizes the mixed, subsistence-market economy. Successful families in these areas combine jobs with subsistence activities and share wild food harvests with cash-poor households who cannot fish or hunt, such as elders, and disabled, and single parents with small children.

Attaching a dollar value to wild food harvests is difficult because these products do not circulate in markets. However, if families do not have subsistence foods, substitutes have to be purchased. If one assumes a replacement expense of $4.00-$8.00 per pound (current range of the price of beef in the Copper River Basin), the replacement value of wild food harvests in the Copper River Basin is estimated at $5.4-$11 million annually (Fall 2014).

3.11 Ahtna – Moose Relationship

Moose in GMU 13 have long been used by the Ahtna Athabaskans, who are the indigenous occupants of most of present-day GMU 13, having lived in the area for at least 1,000 years (de Laguna and McClellan 1981). Moose, along with caribou and sheep, were the major big game species hunted for subsistence by most Ahtna, who hunted from seasonal camps well into the 20th century. By the 1950s, most Ahtna spent the greater part of the year in villages along the area's highway system and the seasonal system of camps was abandoned. By the 1920s and afterwards, restrictions had been placed on big game hunting. This was necessitated in part due to the ease of access to the Copper River Basin by urban hunters in Fairbanks (via the Richardson Highway in the early 1900s), the Matanuska-Susitna Borough, and Anchorage (via the Glenn Highway, constructed in the 1940s).

Archeological evidence indicates that moose were available in the Copper Basin before 1800. The presence of at least four known moose fences attest to the presence of moose (de Leguna 1968). Written historical sources also attest to the presence of moose in the mid to late 19th century. Rufus Sereberinikoff, the Russian explorer who visited the Copper Basin in May of 1848, met two Ahtna families on the Tazlina who had fresh moose meat (Allen 1900). Almost 40 years later the explorer Henry Allen (1887) reported being fed both fresh and dried moose meat on his trip up the Copper River in the spring of 1885, and a number of other explorers in the early 20th century also reported a relative abundance of moose (Simeone 2006). Moose densities were low in GMU 13 during the early 1900s. According to oral accounts, up until the 1930s and 1940s moose were present but scarce in the Copper River Basin (Simeone 2006).

Robert Marshall an Ahtna elder, said that when he was a child (in the late 1920s and early 30s) the only place they could get moose was on the east side of the Copper River (Simeone 2006). Marshal grew up learning to set snares for moose from his mother and father. Today, moose are the most important animal in terms of subsistence, but there is a general belief that there were more moose in the 1970s and 1980s. Another issue that is commonly mentioned is the increased competition from non-locals that is making it harder to find moose.

While people rely heavily on moose, it is not always the preferred food among elders who grew up on caribou and sheep. Modern communities rely more on moose because moose provide a significant quantity of meat. These families are larger now, and it would take about eight sheep or three caribou to equal one moose (Simeone 2006).

4. Results: The Basis of Ahtna Athabascan Claims towards GMU 13 Moose

This section answers the first research question – what are the basic claims that Ahtna has towards GMU 13 moose? In order for Indigenous groups to obtain rights to traditional hunting and fishing grounds, they have had to develop strategies to convince Euro-Americans of the cultural value of a natural resource. Ahtna Inc., the smallest of the Alaska Native Corporations under ANCSA, is at the forefront of the development of cultural and natural resource management programs in Alaska. They are also one of the most active Alaskan Native Corporations in advocating a priority towards fish and game in their traditional territory. Other Native Corporations are interested and monitor Ahtna's progress in their claims towards natural resources such as moose and salmon in the public policy arena.

The first strategy that Ahtna has used is a long history of engaging the natural resource management planning process in Alaska. Perhaps the most well-known case in Ahtna's claim towards subsistence resources comes from Katie John, an Ahtna elder from Batzulnetas, who fought for the right to fish for salmon on Ahtna traditional lands along the Copper River. The "Katie John Case" (actually several cases that involved Katie John and other Ahtna elders) has set a standard for the Ahtna for the engagement in the natural resource management planning arena. The Ahtna Tene Nene' Subsistence Committee is dedicated to retaining and regaining subsistence hunting and fishing rights for their people.

During the 2015 BOG meeting in Wasilla that I attended, 25 Ahtna tribal members showed-up and provided public testimony to the board. They represented around 25% of the total testimonies heard by the board at the meeting. From conversations I had with Designated Hunter A and other ADF&G employees, this is the average BOG meeting attendance for the Ahtna.

During the 2015 BOG meeting that I attended, I heard public testimony from numerous Ahtna people that articulated their claim towards subsistence moose in the Copper River Basin. Many who testified commented on specific proposals while others spoke generally about their families' long term use of moose. All who testified voiced their dissatisfaction with the state subsistence permitting system. The individual who testified on behalf of Ahtna Inc. summed up this dissatisfaction, by saying, *"subsistence users who are part of Ahtna community are not being provided the opportunity needed to meet their subsistence needs of moose and caribou. The BOG findings, 2006-170-BOG, recognize how vital subsistence hunting opportunity is to sustaining the subsistence way of life for the Ahtna Villages and other communities in the Copper Basin. The struggle continues for the Ahtna under the current moose and caribou CSHs."*

The second strategy that Ahtna has used is the historical claim that has developed their way of life, which they articulate in public forums. It is agreed upon but not protected in state or federal law. One Ahtna

elder spoke of this in his testimony at the 2015 BOG meeting in Wasilla. He said, *"Before ANCSA, we (Ahtna) were in discussions with the state about the future of our fish and game use. The state was going to guarantee us a preference towards our fish and game harvest for the future. But ANCSA was signed and the oil pipeline was put in. After that they forgot about us."*

Although the traditional Ahtna Region is highway-accessible and fairly modernized, the people still practice a subsistence way of life whenever possible. For the Ahtna, subsistence does not just refer to activities like hunting, fishing, and trapping and the like; it is the successful continuation of a complex cultural lifestyle that has existed for thousands of years – a lifestyle that is the foundation of their Corporations' culture, values and vision (Ahtna-Inc. History and Culture 2015).

The resources and the cultural practices play a significant role in maintaining the subsistence way of life, because of this, they are constantly seeking ways to continue or further that way of life through cultural education programs and management of natural resources. They have made partnerships with local, state and federal agencies and they continue to consult with the region's individuals (elders and shareholders), tribes, villages, and local organizations. These partnerships involve the documentation of Traditional Ecological Knowledge (TEK) by state and federal agencies for its use in natural resources management.

The third strategy Ahtna uses to retain and regain resource access rights is increasing their capacity to manage wildlife on their lands in recent years. They administered the Copper Basin CSH in 2009, they are working on a USDA funded habitat management project, and the Ahtna Native Corporation works to develop wildlife management capacity of individuals through trainings and experience. The next section will go into more detail about the strategies that Ahtna use to express their claim on moose in GMU 13.

4.1 Cultural Importance of Moose

A dichotomy exists between a moose and its economic and cultural value. An economist may measure moose by the pound to determine its value but the cultural assessment of value is much harder. The inability to harvest enough moose has direct cultural consequences.

As noted above, moose are the most important large land mammal to the Ahtna (Simeone 2006). The importance of moose to Ahtna people was supported by Designated Hunter A and B who both agreed that moose are the most important land mammal to their families. The animal not only provides food for the freezer but it also provides for cultural processes that are internal to Ahtna and their traditional way of life. The BOG first recognized this customary and traditional way of life in 1983 and again in its 2006 and 2011findings, which is set forth in 5 AAC 99.025. It is recognized that GMU 13 moose patterns of use originated within the communities of the indigenous Ahtna Athabascan inhabitants of the Copper River

Basin (2011-184-BOG). The findings emphasize the "community-based" nature of this traditional pattern of use. Among other things, this pattern was described in those findings as:

- Moose link families in widespread networks of sharing that are shaped by traditional norms of behavior;
- It provides a context in which skills, knowledge, and values are passes across generations, which is accomplished efficiently through non-wasteful use for the harvested game and often by hunters who specialize in harvesting meat for the community; and
- Moose hunting occurs within a broader patter of use of and dependence upon a variety of locally-harvested wild foods that is a key element of the way of life of the local area.

During my time in the Copper River Basin, I visited a fish camp, culture camp, and moose hunting camp. These participations and observations in subsistence activities provided me with some understanding of the Ahtna people as well as other rural residents and their relationship to the natural environment. While there have been technological advances and development of roads, one thing remains: rural people still rely heavily on wild resources for food and their way of life.

In June 2014, I attended a fish camp in Gulkana and observed a group of Ahtna young and old residents harvesting and processing sockeye salmon from fish wheels. My local contact, Designated Hunter B, told me how he had to build a new fish wheel for the 2014 season because floods from the previous year had destroyed his family's fish wheel. He described the process of finding the right lumber, constructing the fish wheel with other male family members, and installing it in the Copper River. While he explained this, I watched a few of his female family members collect fish from the basket in the fish wheel and begin to process them. As we returned to Designated Hunter B's aunt and uncle's house, I observed members of the family prepare the smokehouse and hang sockeye salmon.

At this time, I was shown jars of salmon that were harvested and processed in Copper Center (Kluti Kaah) and shared there in Gulkana. A family member described the importance of sharing and maintaining relationships with family in other communities. I also observed younger generations in the family learn how to process salmon from older family members.

Later that summer, in August 2014, I was invited on a CSH moose hunting trip with a group of Ahtna males. We set up camp nine miles south of the Denali Highway along the McLaren River. While looking for moose and caribou, I struck up a conversation with the youngest male in our group. I asked him about his first harvest experience. He told me he had harvested his first caribou in 2013 and as Ahtna tradition dictates, he shared his entire harvest with elders and other people in need. This is a rite of passage to

adulthood for a young Ahtna. As a young hunter is coming of age, it is important for him or her to develop a positive relationship with the animal. Some Ahtna believe a good relationship with the animal dictates whether a hunter harvests an animal, not its temporal and spatial abundance.

After a successful harvest, we returned to the village and were met by a happy family that helped butcher the moose and hang it in the smokehouse. I was surprised how little time it took for the whole family (8 people) to process the meat. This is a common practice among the Ahtna. The family gets together and elder members share knowledge of processing to younger members.

As CSH moose hunt conditions dictate, we harvested the entire animal and I participated and observed how the animal was used. I helped cut up the moose head, which is used in soup (Figure 4-1). It is a delicacy to Ahtna family members that I interacted with. I first learned this when I traveled to Gulkana in April with the Division of Subsistence to conduct harvest surveys. A family that I surveyed was cooking moose head soup from a moose they had received from the road kill list. Additionally, I helped clean portions of the stomach and intestines for distribution to families in the village. We also took a portion of the kidneys, stomach, and intestines to a culture camp that was being held on the banks of the Gulkana River to be cooked for the children and elders that were gathered.

My time in Gulkana participating and observing subsistence activities, confirmed the 2011 BOG finding. People in the village are linked to a widespread network of sharing; subsistence activities still take place and provide a context where knowledge and skills can be passed down through generations; and this pattern occurs almost exclusively within the borders of GMU 13. I say "almost" because Designated Hunter A traveled to Valdez last year and harvested halibut on a charter boat. However, while going from door to door administering the Division of Subsistence harvest survey I encountered numerous people that had been shared halibut and Coho Salmon from Designated Hunter A.

Figure 4-1. Butchering the Moose Head

4.2 Incorporating Local/Traditional Knowledge into Moose Management

An emerging paradigm in research and natural resource management in Alaska, as well as other parts of the North, is the incorporation of local/traditional knowledge into management. In Alaska and Canada, there continues to be strong cultural traditions that shape and are shaped by natural resource management and governance institutions. The management of ecosystems without consideration of traditional knowledge systems can have a negative influence on culture and resources. Conversely, the advantages of including Traditional Ecological Knowledge (TEK) and cultural ways of knowing can benefit ecosystem management and build social and ecological resilience (Berkes 2003).

Indigenous resource users maintain substantial knowledge of the social and environmental conditions of ecosystems. Traditional knowledges are based on the senses, orientations, and skills that have developed over one's lifetime through actual engagement in and performance of practical activities (Poe et al. 2013). This knowledge is not necessarily just passed down through oral traditions, but continually regenerated through practical engagements with the land and expressed through language, meanings, and methods.

Cultural traditions that are developed with an ecosystem depend on access to opportunities to engage practices so that this knowledge may be culturally internalized. In many cases, TEK forms the knowledge

basis for harvesting techniques and practices that are sustainable and which could contribute to social-ecological conservation. Traditional ecological knowledge management strategies include practical application of management that may also be interwoven with the social and spiritual world. In the North, the human-animal relationship must be respected in order for animals to return to them again.

As articulated above, TEK is not simply a collection of data about the environment, but it is embedded within sociocultural processes (Houde 2007). A hunter, when asked to define TEK, will just as likely talk about some subject such as social organization (Nadasdy 1999). To separate knowledge regarding an indigenous worldview of the environment from indigenous culture cannot be done. Indigenous people see themselves as another part of the environment, not separate from it as in Western worldview. The fundamental problem associated with the incorporating indigenous worldviews into resource management is that indigenous peoples find themselves being incorporated into existing Western management systems (Nadasdy 1999, 2003). When governance and management dictate the mechanisms in which indigenous people can interact with the environment, cultural traditions are altered which influence the social and ecological systems they are intertwined with.

Indigenous communities have participated in the management of natural resources for thousands of years. Ancestral knowledge and wisdom of ecosystem dynamics can be valuable because it provides insights on how different communities continue to survive where wildlife and people interact and compete for the same natural resources. Over the past several decades as concerns about declines in habitats, species, and livelihoods have increased, the potential contributions of traditional knowledge to ecosystem research and management have been increasingly recognized (Thornton 2012). Indigenous resource users maintain substantial knowledge of the social and environmental conditions of ecosystems. This knowledge is not necessarily just passed down through oral traditions, but continually regenerated through practical engagements with the land and expressed through language, meanings, and methods (Poe et al. 2013).

Ahtna communities and hunters have interacted with moose for centuries. This long term sustained interaction has given some Ahtna knowledge and insights that are valuable in the sustainable use of moose. In my conversations with Designated Hunter A, it was interesting to hear his communities' traditional form of management for moose. In the interview that I conducted with him, I asked what he considered to be a harvestable moose. He recounted:

"We like to get young bulls. This kind of moose tastes the best. We are not trophy hunters. I can remember going out as a kid on the Klutina River road with my uncle. We were sitting on a on a hill side over-looking a valley and calling them in. The first bull that stepped out was long way off but we could tell he was big by the way he walked. When he [the bull] got closer, we could tell how big he was. He was

probably sixty inches or more and he was rocking his head back and forth. Like this. I wanted to shoot him but my uncle wouldn't let me. He told me it was a breeding bull and that he could mate with more than twenty cows. He also told me that the big ones are old and don't taste good. This is why we don't shoot the trophies around here. They are the breeders and if we want a good moose population, we need the breeders. Luckily, we had another smaller bull come to check him out. He was small, around thirty inches so we took him. I can still remember that bull with his big paddles and his head moving back and forth."

The traditional form of management that Designated Hunter A learned, continues to practice, and teach in his Copper Basin community was also mentioned in the 2015 BOG meeting that I attended. In public testimony a lawyer for Ahtna Inc. got up in front of the board and talked about the original users of GMU 13 moose and how Ahtna has traditional forms of management internalized in their hunting.

In addition to bull moose selection, Designated Hunter A spoke about other traditional knowledge that may be useful to wildlife management. He responded to my question about moose TEK and its use in wildlife management by saying, *"The people know how the moose live and move."* He went on to talk about resource development and hunting pressure influencing the moose habitat and movement.

4.3 Contemporary Ahtna and Wildlife Management Capacity Building

The Copper River-Ahtna Inter-Tribal Resource Conservation District (CRITR) has been selected to receive USDA NRCS Conservation Innovation Grant (CIG) in the amount of $640,000 to develop technical expertise on wildlife habitat and forest management. The grant will also allow CRITR to provide advisory service to the land manager of Ahtna Inc. and Chitina Native Corporation plus seven regional tribes including: the Menatasta Traditional Council, the Cheesh'na Tribe (Chistochina), the Native Village of Gakona, the Gulkana Village Councel, the Native Village of Tazlina, the Native Village of Kluti-Kaah (Copper Center), and the Native Village of Chitina.

The NRCS will take what CRITR learns and help other tribal conservation districts, corporations and tribes improve their wildlife habitat and support sustainable subsistence food production. The project will adapt NRCS practices to Alaska for moose browse and other subsistence resources. This is a groundbreaking CIG for Alaska and Native organizations nationwide. CRITR is the first tribal conservation district in Alaska to receive a CIG. Also, no tribal conservation district and only one tribal organization has ever received as much funding in a CIG. The NRCS has offered this grant program since 2004, investing in ways to develop and demonstrate innovative conservation measures.

This USDA NRCS granted project with the CRITR is an example of government to government relations that can be considered co-management of natural resources. Other examples of this sort of management

scenario in Alaska include the Alaska Eskimo Whaling commission, the Alaska Migratory Bird Co-Management Council, and even the 2009 Copper River Basin CSH.

In my key respondent interview with Designated Hunter A, I learned more about the sort of habitat management Ahtna is doing with the grant. My question was about the collaborative management of resources and he responded by saying, *"We've been trying to get involved [in collaborative management]. It seems like we are getting overrun by people coming in from Anchorage with machines and a lot of local people don't have them. So to compete with them we need to grow more moose and I think it can be done."* At this time in the interview, I asked for more details about habitat management and Ahtna's involvement. He went on to explain the management techniques that Ahtna is using to create moose habitat with the grant money. Basically, they are using dozers to scarify the land to act as a disturbance and create new growth. In turn, the new growth creates browse for moose.

Designated Hunter A also talked about his personal experience with clearing land for fence construction and corresponding moose behavior. *"When I worked construction we did the fence at Eielson Air Force Base at Fairbanks. We put in eight-miles of fencing around that airport. We were running about 12 feet wide, knocking them trees down and we came back after lunch and the trees that were knocked over, the moose smelled it. So they were in there eating the treetops, the best part. That stuff has grown up but they can't get it. I know they have to be smelling it to be there."*

In addition to the moose habitat projects that Ahtna has underway they are also proposing a Federal-State-Tribal co-management structure that will help maintain the Ahtna people's subsistence hunting practices on Ahtna lands. The goal of the co-management structure is to coordinate state, federal, and Ahtna policies, to ensure conservation of wildlife populations and to provide the hunting opportunity necessary for Ahtna tribal members to continue their tribal hunting way of life. The intent is to unify wildlife management throughout Ahtna's traditional territory to the maximum extent possible.

Alaska's constitution will not allow the participation in the co-management structure where Ahtna has part management and regulatory authority on state lands but it is likely that the Department of Interior may agree. This could lead to Ahtna lands being entrusted to the Department of the Interior, which would make Ahtna lands sovereign to state regulations, similar to the reservation systems of the lower 48.

4.4 Selected Human Dimensions: Subsistence Harvest Surveys

ADF&G Division of Subsistence harvest surveys are conducted throughout rural Alaska as part of the 1978 subsistence law. The Division of Subsistence is charged with documenting C&T practices and the harvest surveys provide a systematic way to document the use of resources by rural households. In order to understand whether or not Ahtna communities are satisfied with current regulations and the opportunity

that they provide, I will look at Assessment questions asked on harvest surveys in 3 communities in 2012 and 2013. The Division of Subsistence southern region surveyed the communities of the Copper Basin as part of the National Park Service update and the Susitina-Watana Dam project. The Nation Park Service update (La Vine and Zimpelman 2014) was funded through a cooperative agreement between Wrangell St. Elias National Park and ADF&G, and was conducted to update local community harvests. The Susitna-Watana Dam Project was part of the State of Alaska's effort to assess the feasibility of constructing a hydroelectric dam on the Susitna River. Potential development of the Susitna-Watana dam necessitated updated baseline information about the full range of wild resource use of community residence in the project area (Holen et al. 2014).

Most of the Copper Basin communities had not been visited by the division and surveyed since the 1980s. The data gives a wild resource harvest snap shot of the previous year. In addition to the harvest data, demographic, economic, and assessment questions are included. However, assessment questions differed in the survey instrument from the National Park Service update and the Susitna-Watana Dam project.

The assessment questions in the Susitna-Watana Dam project that I have analyzed deal with whether or not local residents got enough and how much it impacted their household. For this, I use responses from Gulkana and Tazlina households in 2013 (Table 4-1 and 4-2). Almost 60% of Gulkana and Tazlina households felt like they were not getting enough large land mammals; and over 50% in Gulkana and 45% in Tazlina said that it was a major impact to their households. In addition, after respondents are asked whether or not they got enough they are prompted to say what they needed more of. Close to 70% of Gulkana and 64% of Tazlina households listed moose as a large land mammal they needed more of.

The assessment questions in the Nation Park Service update were slightly different. Assessment questions asked respondents about the change in household use of resources compared to recent years and respondents were asked to choose whether they used less, the same, or more. In Chitina, 49% percent of respondents answered that their households used less resources compared to recent years (Table 4-3); 41% responded that their households used the same and; 11% of respondents said they used more.

Table 4-1. Reported Impact to Households Reporting that they did not get enough, Gulkana, 2013

		Households not getting enough _____.				Impact to those not getting enough _____.									
	Sample	Valid responses[a]		Did not get enough		No response		Not noticeable		Minor		Major		Severe	
Resource category	households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Salmon	29	29	100.0%	12	41.4%	1	8.3%	0	0.0%	7	58.3%	4	33.3%	0	0.0%
Nonsalmon fish	29	21	72.4%	2	9.5%	0	0.0%	0	0.0%	1	50.0%	1	50.0%	0	0.0%
Marine invertebrates	29	2	6.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Large land mammals	29	26	89.7%	15	57.7%	0	0.0%	0	0.0%	7	46.7%	8	53.3%	0	0.0%
Marine mammals	29	6	20.7%	1	16.7%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%
Small land mammals	29	13	44.8%	8	61.5%	0	0.0%	0	0.0%	6	75.0%	2	25.0%	0	0.0%
Migratory waterfowl	29	6	20.7%	1	16.7%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%
Other birds	29	9	31.0%	4	44.4%	0	0.0%	0	0.0%	3	75.0%	1	25.0%	0	0.0%
Bird eggs	29	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Vegetation	29	25	86.2%	12	48.0%	0	0.0%	0	0.0%	7	58.3%	5	41.7%	0	0.0%
All resources	**29**	**26**	**89.7%**	**16**	**61.5%**	**0**	**0.0%**	**0**	**0.0%**	**7**	**43.8%**	**8**	**50.0%**	**1**	**6.3%**

Source ADF&G Division of Subsistence household surveys, 2014.

a. Does not includes households failing to respond to the question or those households that never used the resource.

Table 4-2. Reported Impact to Households Reporting that they did not get enough, Tazlina, 2013

		Households not getting enough _____.				Impact to those not getting enough _____.									
	Sample	Valid responses[a]		Did not get enough		No response		Not noticeable		Minor		Major		Severe	
Resource category	households	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Salmon	79	77	97.5%	22	28.6%	1	4.5%	0	0.0%	9	40.9%	9	40.9%	3	13.6%
Nonsalmon fish	79	61	77.2%	29	47.5%	2	6.9%	0	0.0%	20	69.0%	5	17.2%	2	6.9%
Marine invertebrates	79	15	19.0%	12	80.0%	2	16.7%	0	0.0%	10	83.3%	0	0.0%	0	0.0%
Large land mammals	79	72	91.1%	42	58.3%	2	4.8%	0	0.0%	13	31.0%	19	45.2%	8	19.0%
Marine mammals	79	8	10.1%	4	50.0%	0	0.0%	0	0.0%	4	100.0%	0	0.0%	0	0.0%
Small land mammals	79	24	30.4%	11	45.8%	1	9.1%	0	0.0%	7	63.6%	2	18.2%	1	9.1%
Migratory waterfowl	79	16	20.3%	9	56.3%	0	0.0%	0	0.0%	6	66.7%	2	22.2%	1	11.1%
Other birds	79	34	43.0%	15	44.1%	2	13.3%	0	0.0%	10	66.7%	2	13.3%	1	6.7%
Bird eggs	79	1	1.3%	1	100.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	0	0.0%
Vegetation	79	74	93.7%	35	47.3%	1	2.9%	0	0.0%	17	48.6%	12	34.3%	5	14.3%
All resources	**79**	**79**	**100.0%**	**42**	**53.2%**	**1**	**2.4%**	**1**	**2.4%**	**10**	**23.8%**	**24**	**57.1%**	**6**	**14.3%**

Source ADF&G Division of Subsistence household surveys, 2014.

a. Does not includes households failing to respond to the question or those households that never used the resource.

Table 4-3. Change in Household use of Resources Compared to Recent Years, Chitina, 2012

			Households reporting use[b]					
	Sampled	Valid	Less		Same		More	
Resource category	households	responses[a]	Number	Percentage	Number	Percentage	Number	Percentage
Any resource[c]	46	45	34	76%	37	82%	21	47%
All resources	46	44	15	34%	19	43%	10	23%
Salmon	46	43	11	26%	22	51%	10	23%
Nonsalmon fish	46	33	6	18%	19	58%	8	24%
Large land mammals	46	37	18	49%	15	41%	4	11%
Small land mammals	46	14	8	57%	6	43%	0	0%
Migratory birds	46	4	1	25%	2	50%	1	25%
Other birds	46	17	9	53%	6	35%	2	12%
Bird eggs	46	0	0	0%	0	0%	0	0%
Marine invertebrates	46	6	2	33%	2	33%	2	33%
Vegetation	46	43	16	37%	18	42%	9	21%

Source ADF&G Division of Subsistence household surveys, 2013.

a. Valid responses do not include households that did not provide any response and households reporting never using resources from the category.

b. Percentages based on valid responses only.

c. The number of households that gave a valid response in at least 1 of the resource categories. Households are counted only once even though they may give more than 1 valid response.

In addition to the assessment questions, moose harvest histories of Ahtna communities have been compiled by the comprehensive survey. All eight Ahtna communities have been surveyed in multiple study years. The majority of communities were surveyed by the Division of Subsistence in 1982-1983, (Stratton and Georgette 1984), 1987-1988 (ADF&G CSIS), and 2009-2013 (Kukkonen and Zimpelman 2009; La Vine and Zimpelman 2014; Holen et al. 2014; Holen et al. 2015). Keep in mind this harvest data does not reflect Ahtna harvests only. Alaska Native as a percentage of total population ranges between 16% in Cantwell (Holen et al. 2014) to 70% in Gulkana (Holen et al. 2015).

The Range of harvest for all study years and all communities is 50 to 128 moose and the average is 95 moose (ADF&G CSIS). This is in line with the number that I gathered from Designated Hunter A. During our time hunting, I asked him how many moose Ahtna would need and he gave me a range of 80-100 moose. As discussed, Ahtna and other rural residents feel that they are not getting enough moose. The next chapter will provide data on the number of moose hunters, moose harvests, and success rates by area of residence.

5. Development of State Subsistence Moose Hunting Regulations, Moose Hunter Participation, and Harvest History

As noted earlier, multiple sources of data were used to document the development of moose hunting regulations, human harvest history of moose, and GMU 13 moose population trends. The development of subsistence moose hunting regulations in the Copper River Basin began with the first subsistence moose hunt in 1983. However, my documentation begins at statehood (1960) because this is when the regulation of Copper River Basin Moose began. This study concludes with regulations adopted in the 2015 BOG meeting cycle. My documentation of human harvest history and moose population trends begins in 1969. This is when the ADF&G began collecting data that differentiated local (GMU 11 and 13) residents and non-local residents.

I have broken down the history of regulations into four sections based on major subsistence regulatory changes. The sections are:

1. Pre-subsistence regulations, 1960-1982.
2. The first GMU 13 subsistence regulations, 1983-1989.
3. Post McDowell regulations, 1990-2008
4. The Copper Basin CSH, 2009-present.

Before I break into the first section, I will give an overview of the number of moose hunters, moose harvests, and hunter success rates by area of residence from 1969-2014. Additionally, an overview of

GMU 13 moose regulations, seasons, and bag limits is provided in Appendix A. Table 5-1 provides the number of moose hunters, hunter harvests, and hunter success rates by area of residence (see also Figure 5-1 and 5-2). Table 5-2 depicts the mean, maximum, and minimum number of moose hunters and harvests in GMU 13. Each of the following sections in this chapter will contain figures that provide number of hunters and moose harvests for the time period as a quick reference.

Table 5-1. Number of Moose Hunters and Harvests by Area of Residence, 1963-2014

Year	Number of Hunters			Moose Harvests			Success Rate		
	Local	**Non-Local**	**Total**	**Local**	**Non-Local**	**Total**	**Success Rates - Local**	**Success Rates – Non-local**	**Difference-Local-nonlocal**
1963						1,735			
1964						1,607			
1965						1,331			
1966			4,163			1,553			
1967			3,578			1,243			
1968			4,035			1,210			
1969	296	2,544	2,840	94	815	909	31.8%	32.0%	-0.2%
1970			2,622			852			0.0%
1971	343	3,965	4,308	122	1,281	1,403	35.6%	32.3%	3.3%
1972	196	2,448	2,644	34	398	432	17.3%	16.3%	1.0%
1973	157	2,029	2,186	39	410	449	24.8%	20.2%	4.6%
1974	200	2,240	2,440	43	576	619	21.5%	25.7%	-4.2%
1975	210	2,486	2,696	45	536	581	21.4%	21.6%	-0.2%
1976	286	2,648	2,934	58	570	628	20.3%	21.5%	-1.2%
1977	241	1,922	2,163	64	548	612	26.6%	28.5%	-1.9%
1978	382	2,338	2,720	99	614	713	25.9%	26.3%	-0.4%
1979	301	2,004	2,305	101	734	835	33.6%	36.6%	-3.0%
1980	366	2,249	2,615	76	374	450	20.8%	16.6%	4.2%
1981	437	2,473	2,910	106	581	687	24.3%	23.5%	0.8%
1982	437	2,329	2,766	74	484	558	16.9%	20.8%	-3.9%
1983	584	2,510	3,094	147	666	813	25.2%	26.5%	-1.3%
1984	576	2,722	3,298	131	640	771	22.7%	23.5%	-0.8%
1985	650	2,715	3,365	135	598	733	20.8%	22.0%	-1.2%
1986[a]	1,166	3,112	4,278	230	813	1,043	19.7%	26.1%	-6.4%
1987[a]	850	2,956	3,806	199	633	832	23.4%	21.4%	2.0%
1988[a]	928	2,959	3,887	263	821	1,084	28.3%	27.7%	0.6%

-continued-

Table 5-1. Page 2 of 2.

Year	Number of Hunters			Moose Harvests			Success Rates		
	Local	**Non-Local**	**Total**	**Local**	**Non-Local**	**Total**	**Success Rates - Local**	**Success Rates – Non-local**	**Difference-Local-Non-local**
1989[a]	755	3,416	4,171	249	818	1,067	33.0%	23.9%	9.1%
1990	741	1,878	2,619	102	346	448	13.8%	18.4%	-4.6%
1991	865	2,132	2,997	155	531	686	17.9%	24.9%	-7.0%
1992	825	2,307	3,132	101	518	619	12.2%	22.5%	-10.3%
1993	912	4,524	5,436	138	1,020	1,158	15.1%	22.5%	-7.4%
1994	924	4,784	5,708	113	745	858	12.2%	15.6%	-3.4%
1995	961	4,847	5,808	152	724	876	15.8%	14.9%	0.9%
1996	937	4,897	5,834	150	776	926	16.0%	15.8%	0.2%
1997	865	4,815	5,680	130	713	843	15.0%	14.8%	0.2%
1998	943	4,246	5,189	136	706	842	14.4%	16.6%	-2.2%
1999	943	3,834	4,777	153	576	729	16.2%	15.0%	1.2%
2000	870	3,072	3,942	104	406	510	12.0%	13.2%	-1.2%
2001	898	2,531	3,429	104	324	428	11.6%	12.8%	-1.2%
2002	924	2,507	3,431	114	455	569	12.3%	18.1%	-5.8%
2003	875	2,599	3,474	136	483	619	15.5%	18.6%	-3.1%
2004	826	2,743	3,569	112	500	612	13.6%	18.2%	-4.6%
2005	864	2,904	3,768	103	463	566	11.9%	15.9%	-4.0%
2006	855	3,227	4,082	110	574	684	12.9%	17.8%	-4.9%
2007	743	2,950	3,693	129	489	618	17.4%	16.6%	0.8%
2008	837	3,472	4,309	130	610	740	15.5%	17.6%	-2.1%
2009	882	3,539	4,421	154	713	867	17.5%	20.1%	-2.6%
2010	791	4,114	4,905	70	799	869	8.8%	19.4%	-10.6%
2011	485	3,778	4,263	104	768	872	21.4%	20.3%	1.1%
2012	452	4,503	4,955	75	586	661	16.6%	13.0%	3.6%
2013	491	4,693	5,184	54	617	671	11.0%	13.1%	-2.1%
2014	460	4,108	4,568	70	778	848	15.2%	18.9%	-3.7%

[a] from 1986 through 1989, residents of GMU 13 communities qualified for registration subsistence permits

Source: ADF&G Division of Wildlife Conservation

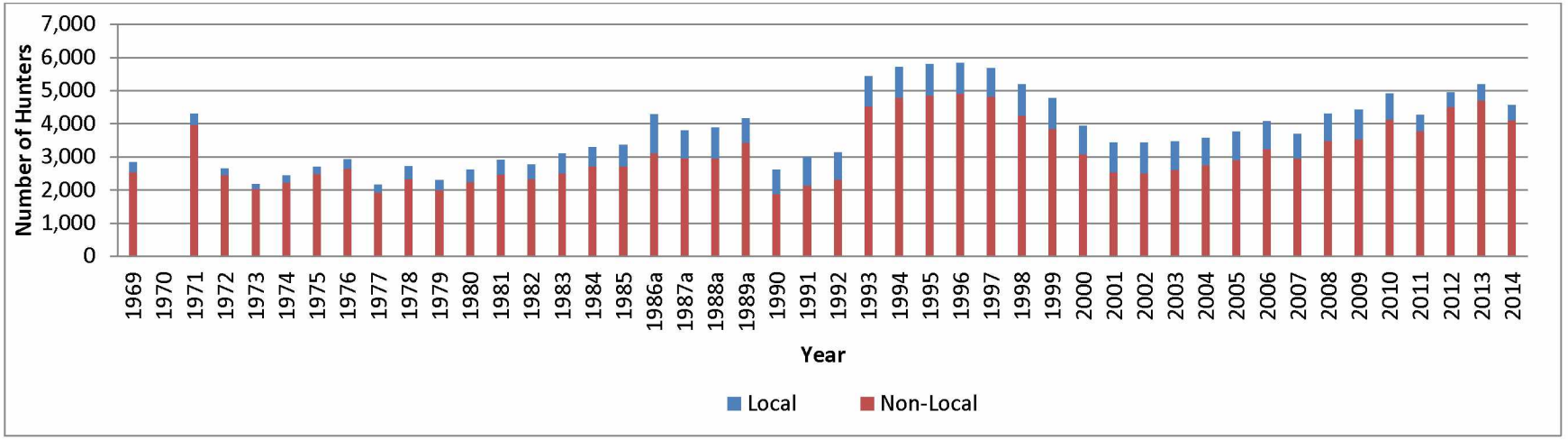

Figure 5-1. Total Number of Moose Hunters and Number of Moose Hunters by Area of Residence.

a From 1986 through 1989, residents of GMU 13 communities qualified for subsistence registration permits

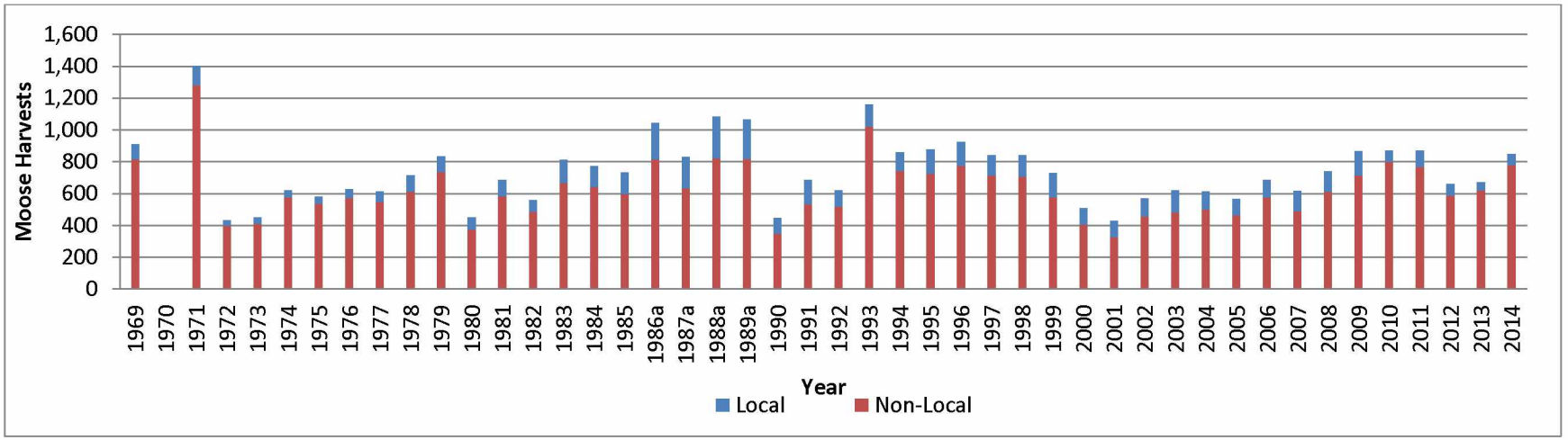

Figure 5-2. Total Number of Moose Harvests and Number of Moose Harvests by Area of Residence.

a From 1986 through 1989, residents of GMU 13 communities qualified for subsistence registration permits

Table 5-2. Mean, Maximum, and Minimum Numbers of Hunters and Moose Harvests by residence

	Number of Local Hunters	Number of Nonlocal Hunters	Total Number of Hunters	Moose harvests by Locals	Moose harvests by Nonlocals	Total Number of moose Harvests
Mean	656	3,135	3,775	116	625	824
Max	1,166	4,897	5,834	263	1,281	1,735
Min	157	1,878	2,163	34	324	428

5.1 Pre-Subsistence Regulations, 1960-1982

From 1960-1973, there were two hunting seasons each year, one occurring from late August until late September, and a second taking place in November (see Appendix A). From 1960 through the 1974 season, moose hunting in GMU 13 opened each year on August 20. The closing date for this first season was September 30 until 1970, when this was changed to September 20. The November season opened on November 1 from 1960 through 1973 and closing dates varied from November 30 (1960-65), November 20 (1966-72), to November 10 (1973). The November season was permanently eliminated beginning in 1974. Although season length was relatively stable from 1975-1989, beginning in 1980, additional restrictions on general moose hunting in GMU 13 were adopted in the form of antler size requirements. These requirements pertained to all hunters through 1982, to non-subsistence hunters through 1989, and again for all hunters beginning in 1990.

In summary, beginning in the early 1970s, the BOG adopted increasingly restrictive seasons and bag limits for moose hunting in GMU 13 in response to reduced harvestable surpluses and continued harvest pressures emanating largely from outside the unit (Stratton and Georgette 1984). As a consequence, competition among hunters for the available moose has been high (ADF&G 1992).

In 1978, the Alaska Legislature adopted the state's first subsistence statute. Subsistence hunting and fishing was defined as "customary and traditional uses" [AS 16.05.940(33)], and subsistence was established as the priority consumptive use of fish and wildlife resources, unless regulations jeopardized the maintenance of the resource on a sustained-yield basis (now AS 16.05.258). The BOG did not address subsistence uses of moose in GMU 13 under the new law until 1983.

Figures 5-3 and 5-4 illustrate the total number of moose hunters and moose harvests by area of residence, from 1969 through 1982. Total number of hunters spiked in 1971, with 4,308 and declined to 2,644 in 1978. Total moose harvests also spiked in 1971 at 1,403 moose and reduced to 398 in 1972. Moose were abundant in GMU 13 throughout the 1950s and peaked in the mid-60s. In 1975, GMU 13 moose population declined and reached a low (Schwanke 2012). It is important to note that local hunter

participation and harvests were at all-time lows during this time period. Moose population, the absence of a rural preference and increasingly restrictive seasons and bag limits beginning in the early 70s may have led to the lowest recorded moose hunting participation and harvests by locals during this time period. Another social change that occurred in the Copper Basin during this time period was the construction of the oil pipeline, which started in 1974 and ended in 1977. This brought a lot more work to the Copper Basin for locals and non-locals than in years previous.

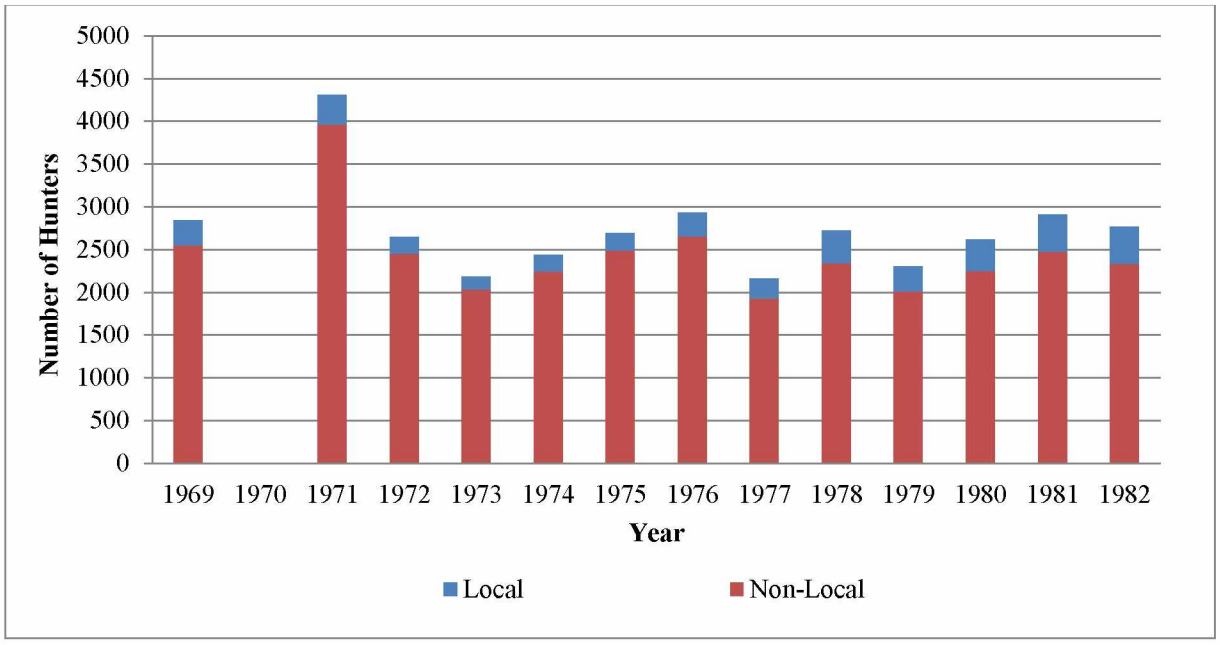

Figure 5-3. Total Number of Moose Hunters and Number of Hunters by Area of Residence, 1969-1982

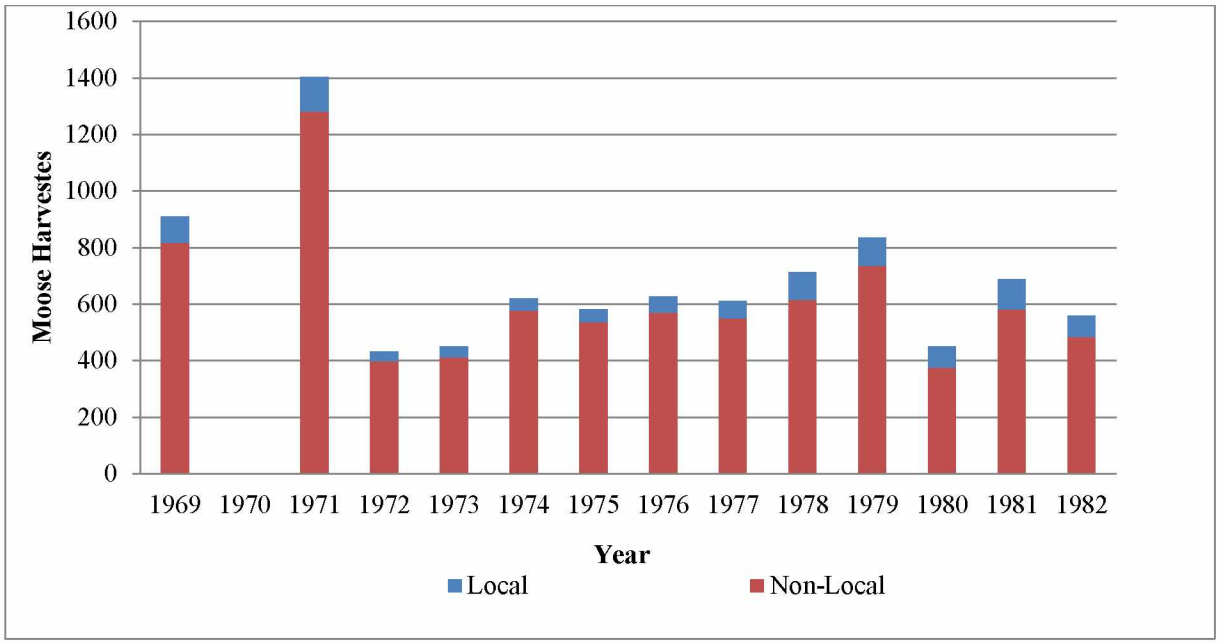

Figure 5-4. Total Number of Moose Harvested and Number Harvested by Area of Residence, 1969-1982

5.2 The First GMU 13 Moose Subsistence Regulations, 1983-1989

For the most part, from 1983 through 1989, the BOG modified hunting regulations for GMU 13 to provide for subsistence uses by doing three things (ADF&G 1992):

1. Limiting eligibility for subsistence moose hunting in GMU 13 to residents of the GMU (regulatory actions in 1983 and 1986).
2. Easing bag limit restrictions for subsistence permit holders (1983).
3. Increasing the subsistence hunting season by restoring seven days in August (1987).

At its spring meeting in 1983, the BOG passed a proposal submitted by Ahtna Inc., which established a subsistence drawing permit hunt (100 permits) with a one "any bull" bag limit (BOG 1983). Ahtna proposed that the hunt be limited to qualified subsistence applicants residing in Unit 13 and that the bag limit be one bull moose per family unit. There are numerous local subsistence hunters who hunt close to the road system that seldom have the opportunity to shoot a large bull (recall that the bag limit for all at this time was a bull moose with greater than 36 inch antlers). By allowing them to shoot a bull of any size, their chances of success would increase (BOG 1983).

The BOG adopted several permit conditions for this hunt, including that the applicants be residents of GMU 13, and that no more than one person per household could apply for the permit. The limit of one subsistence permit per household for subsistence moose hunters in GMU 13 was in effect in 1983, 1984, and 1985, but was dropped when a subsistence registration hunt began in 1986 (see below). However, the

following year saw proposals from three local user groups. The Copper River Advisory Committee, the Paxson Advisory Committee, and the Copper River Native Association advocated a return to a limit of one subsistence permit per household for one bull moose, in order to better distribute the available game. In 1987, the BOG adopted this change.

As a result of the Alaska Supreme Court's decision in Madison v. Alaska Dept. of Fish and Game in 1985 (Alaska 1985) regulations limiting eligibility for subsistence hunts were overturned. Consequently, in 1985 all Alaskans were eligible to apply for the 200 subsistence drawing permits for taking any bull moose in GMU 13, but hunters without permits were subject to antler size restrictions.

In 1986, the Alaska legislature passed a new subsistence law that established a rural subsistence preference. Meeting in an emergency session in June 1986, the BOG reviewed the regulations for a limited number of hunts with special resource conservation concerns, including GMU 13 moose. The Board affirmed its early finding that there were customary and traditional uses of this game population by residents of the GMU. It adopted regulations allowing subsistence hunters to take one bull moose by registration permit. An unlimited number of registration permits were available. Subsequent hunting seasons reported the highest harvests by locals in since records of their harvests began (see Table 5-4).

Table 5-3. Ten largest moose harvests by "local" residents of GMUs 11 and 13, 1969-2014

Year	Moose Harvests by local residents
1988 [a]	263
1989 [a]	249
1986 [a]	230
1987 [a]	199
1991	155
2009	154
1999	153
1995	152
1999	152
1993	150
1996	150

[a] From 1986 through 1989, residents of GMU 13 communities qualified for registration permits

During its spring 1987 meeting, the BOG addressed season length for subsistence moose hunting in GMU 13. This was the first meeting following passage of the 1986 subsistence law for which public proposals on GMU 13 moose were accepted. The Copper River Native Association proposed an extension of the subsistence season from September 1-20 to August 20-September 30, a return to the fall season that had been in effect before 1970. The justification for this proposal was that the average subsistence user cannot compete with off-road vehicles, which most sport and non-subsistence hunters use. The majority of the subsistence users hunt with their private vehicles along the road (Reckord 1983). They argued that

subsistence hunters therefore require extra opportunity to make their hunts more successful (ADF&G 1992). Success rates for moose harvest by residency can be found in Table 5-1. Since 1969, non-local hunters have out-competed locals 30 out of 44 years.

Table 5-1 provides an overview of the number of moose hunters and harvests by area of residence from 1983-1989 (also see Figures 5-5 and 5-6). As you might expect, this period of time saw the most local moose hunting participation as well as local moose harvests. Remember, this time period's regulations allowed an unlimited amount (1 per household) of subsistence registration permits allotted to locals only, beginning in 1986 and ending after 1989. Also during this time period, the GMU 13 moose population peaked in 1987 (Schwanke 2012).

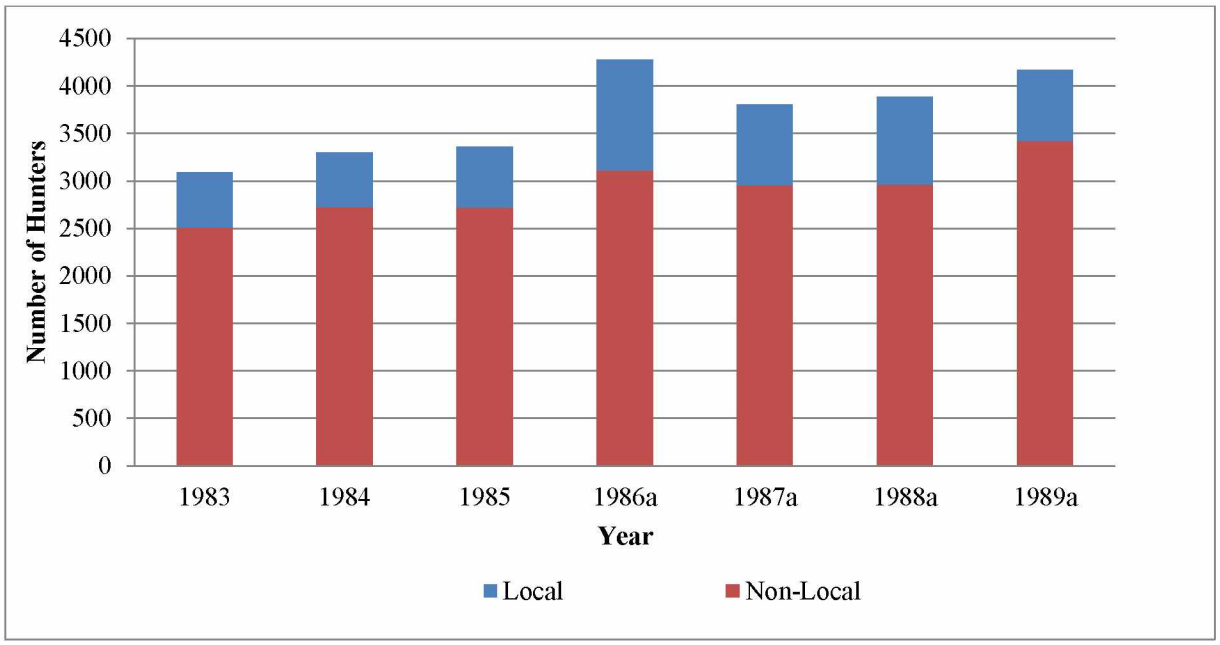

Figure 5-5.-Total Number of Moose Hunters and Number of Hunters Area of Residence, 1983-1989
a From 1986 through 1989, residents of GMU 13 communities qualified for subsistence registration permits

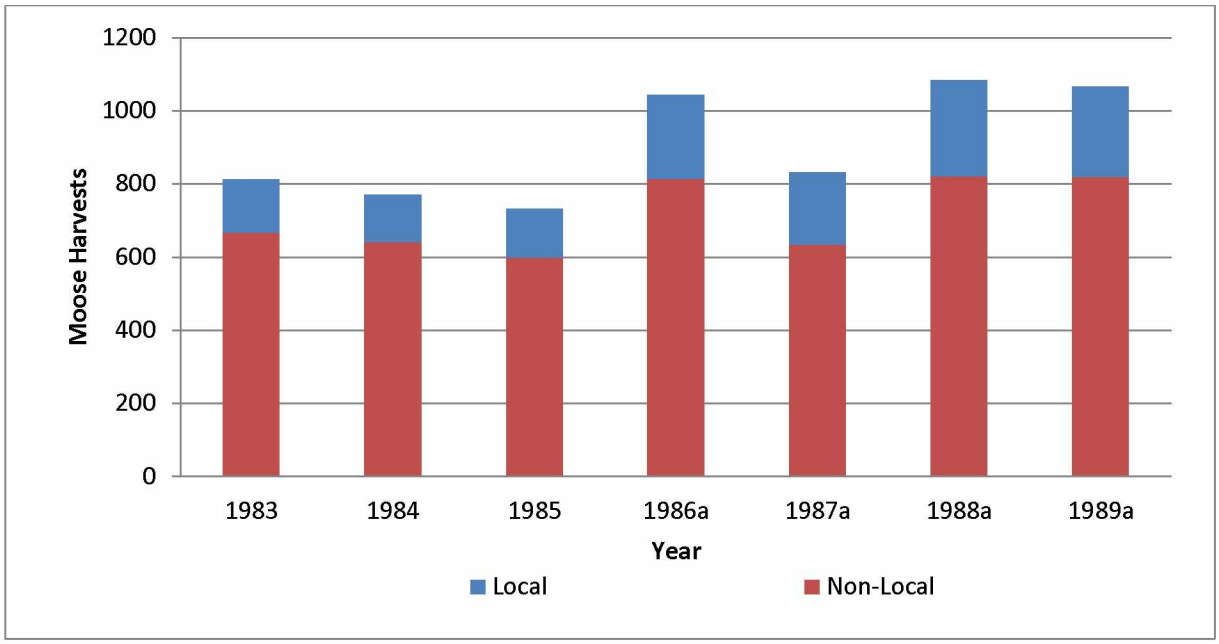

Figure 5-6. Total Number of Moose Harvested and Number Harvested by Area of Residence, 1983-1989
a From 1986 through 1989, residents of GMU 13 communities qualified for subsistence registration permits

5.3 Post McDowell Decision, 1990-2008

In December 1989, the Alaska Supreme Court ruled in McDowell v. Alaska (Alaska 1989) that subsistence law granting a priority based solely on residency is inconsistent with the "common use" clause and other sections of article VIII of the Constitution and therefore unconstitutional. The ruling placed the state out of compliance with ANILCA and consequently in 1990 federal agencies adopted separate subsistence hunting regulations. Beginning in 1990, the Federal Subsistence Board has adopted subsistence hunting regulations for federal lands in GMU 13. For moose, the federal board adopted the state's "pre McDowell" regulations. The federal season continues to run from August 15 through September 20 with a one bull limit. Hunters must obtain a federal registration permit, and only one permit is issued per year per household. Only residents of GMU 13 are eligible for these subsistence permits. Moose taken under the authority of a federal permit can be taken only on federal public lands.

Without a rural priority in state law, as of 1990 all Alaska residents are eligible to participate in subsistence hunts. The subsistence moose hunting season in GMU 13 for the 1990-91 and 1991-92 regulatory years were drastically different from any which had occurred in previous years. A split season was authorized for 1990-91, with a five-day September 5-9 general hunt and a Tier II hunt from December 1-31. In 1991-92, there was only a seven day season from September 5-11 for all state hunts.

In State v. Kluti Kaah Native Village of Copper Center (ADF&G 1992), the Alaska Supreme Court reversed a preliminary injunction by the superior court against the BOG imposition of a seven day moose hunt in GMU 13. The trial court was found to have made a mistake by concluding that the harm to the State was insignificant by issuing a 26 day hunting season for residents of the Kluti Kaah Native Village of Copper Center. The Alaska Supreme Court held that the State had an interest in developing and maintaining a uniform system of game allocation. The Alaska Supreme Court was concerned that the injunction did not adequately protect the interests of either subsistence hunters or guard against depletion of the moose population. Additionally, the Supreme Court determined that the trial court should have considered the threat that multiple injunctions would represent to the moose population and the problems it would create for orderly game allocation.

Also in 1992, the BOG adopted written findings (92-60-BOG) that explain the ANS determination of bull moose in GMU 13. According to the findings, the board accepted the department's recommendation that 600 bull moose were available to harvest. During this time, there were approximately 3,000 subsistence users who hunt moose in Unit 13. Approximately 600 of these hunters were local residents of Unit 13. It was also determined that all 600 harvestable moose were needed to provide a reasonable opportunity for subsistence uses by the 3,000 hunters. An ANS range of 300-600 bull moose was adopted in 2009 and reaffirmed in 2011 (2011-184-BOG).

In the 1992-93 regulatory year there was fifteen day season from September 1-14. During the next two regulatory years the length of the season grew to thirty-one days and antler restrictions changed to 1 bull with 50-inch antlers/three brow tines/spike/or fork for sport and subsistence hunters.

In 1995-96, the BOG adopted a Tier II permitting system for GMU 13, which offered 150 any bull moose permits. The Tier II permitting system scores applicants based on based on two factors established by law:

1. Customary and direct dependence on the game population as a mainstay of livelihood and;

2. Ability to obtain food if access to the game population is restricted or eliminated.

The Board of Game established a set of questions that measure these two factors for each applicant. The number of permits available for each Tier II hunt is based on the harvestable surplus. Those applicants with the highest scores receive permits. All Alaska residents may apply for Tier II permits; there is no restriction based on length or place of residence.

In 2006, BOG findings recognized issues with the Tier II subsistence permit system. It was plagued with public complaints about inequities, unfairness, and false applications. Board members were concerned that the Tier II hunting patterns no longer meeting the Board's intent when these subsistence hunts were originally established in regulation. A review of this hunt questioned whether they were consistent with the Board's customary and traditional use findings based on the eight criteria the Joint Boards of Fish and Game established (5 ACC 99.010) for implementing the state subsistence law (AS 16.05.258(a)).

Statistics from the GMU 13 Tier II moose hunt illustrate some disconcerting trends (see Table 5-4 and Figure 5-7). Permits were slowly shifting away from local Alaska residents, who the Board identified as the most dependent on the wildlife resources in the region and towards less subsistence dependent urban residents (2006-170-BOG). It made it difficult for long-time, resource-dependent residents of the area to compete for permits, forcing them to rely more heavily on the federal system to provide for subsistence opportunities. The permitting system also made it almost impossible for area newcomers and younger local Alaskans to ever qualify for the limited permits despite their subsistence dependence on wildlife resources for food.

Table 5-4. Tier II Moose Hunters in GMU 13 by Area Residence

Year	Tier II		
	Local	Non-Local	Local Percentage
1995	91	28	76%
1996	98	33	75%
1997	99	11	90%
1998	105	26	80%
1999	94	23	80%
2000	114	12	90%
2001	116	10	92%
2002	80	48	63%
2003	56	74	43%
2004	67	48	58%
2005	72	55	57%
2006	62	67	48%
2007	67	61	52%
2008	73	54	57%

Source: ADF&G Winfonet

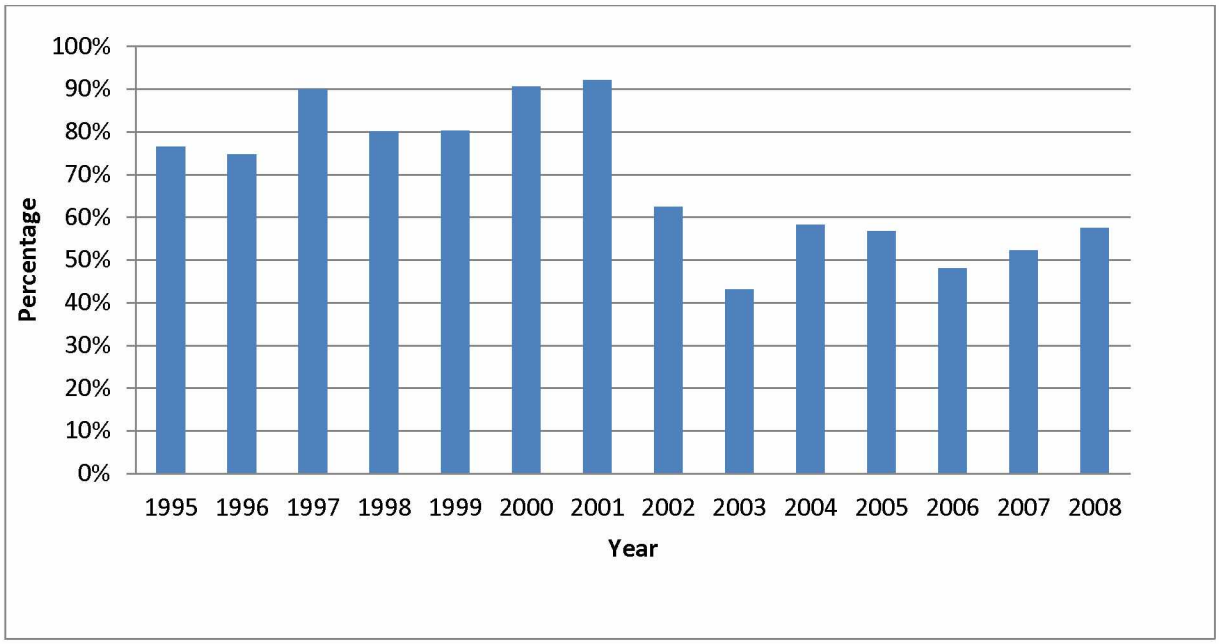

Figure 5-7. Percentage of Tier II Local Moose Hunters

Also highlighted in the 2006 findings was the "community-based" pattern of use that was developed by Ahtna Athabascans in the region. This pattern includes the traditional teaching of the art of hunting, fishing, and trapping to younger generations, as well as the processing, utilization, and other long-term social and cultural relationships to the resources being harvested and to the land that produces those resources. With respect to this permitting system, the liberal hunting season and opportunity to harvest "any bull" moose were very important to the Ahtna people and those that live the rural lifestyle. The increasing restrictions on the harvest have had a major impact on the local culture.

The Tier II permitting system lasted in GMU 13 until 2008. In 2009, the Ahtna Tene Nene subsistence committee submitted a proposal for the Copper Basin CSH. This new permitting system replaced the Tier II permitting system because of controversy surrounding the scoring of Tier II applicants.

This time period in GMU 13 moose hunting history saw the most total moose hunters (5,834 in 1996) since numbers have been recorded (Table 5-1 and Figure 5-8). This also makes it clear that local hunters represent a small percentage of the total number of people hunting and harvesting moose in GMU 13. The total moose harvests varied from a high of almost 1200 in 1993 to a low of 428 in 2001. Non-local harvests varied considerably during this 19-year period (346 to1,020 moose) and the local harvest was stable between 101 and 155 moose.

The removal of a rural preference did not deter locals from participating and harvesting GMU 13 moose. Local moose hunting and participation and harvests remained above average and harvests remained relatively high until 1999, when moose populations began to decline and reach another low in 2001 (Schwanke 2012). Also during this time period, non-local hunted more successfully than local hunters, 14 out of the 19years (Table 5-1).

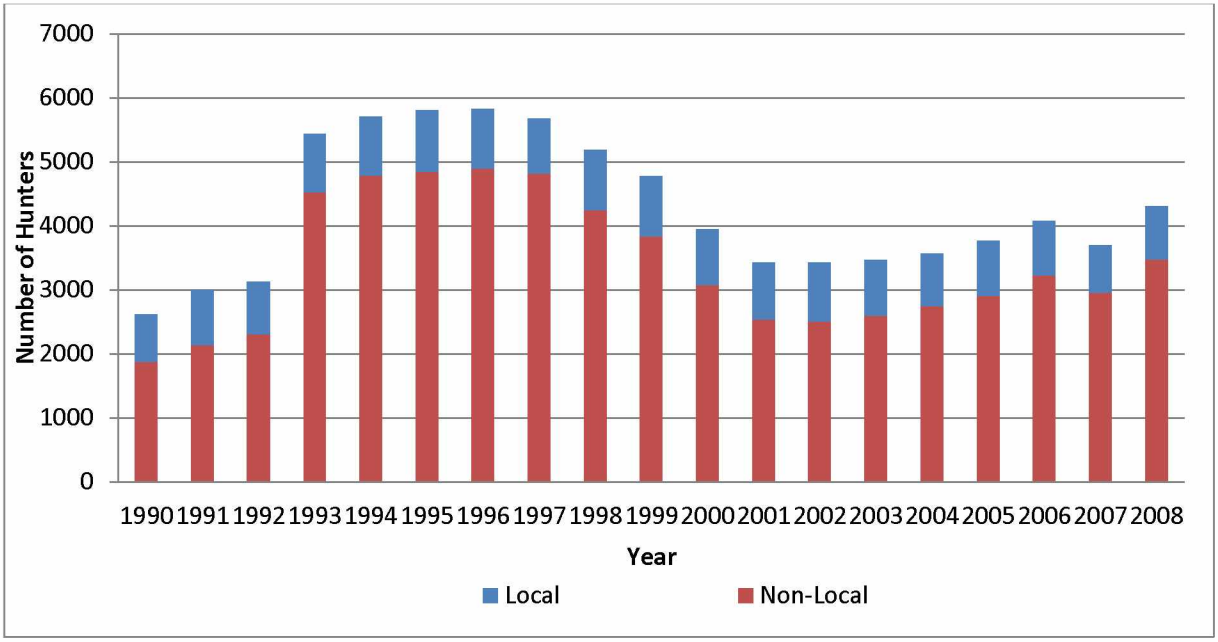

Figure 5-8. Total Number of Moose Hunters and Number of Hunters Area of Residence, 1990-2008

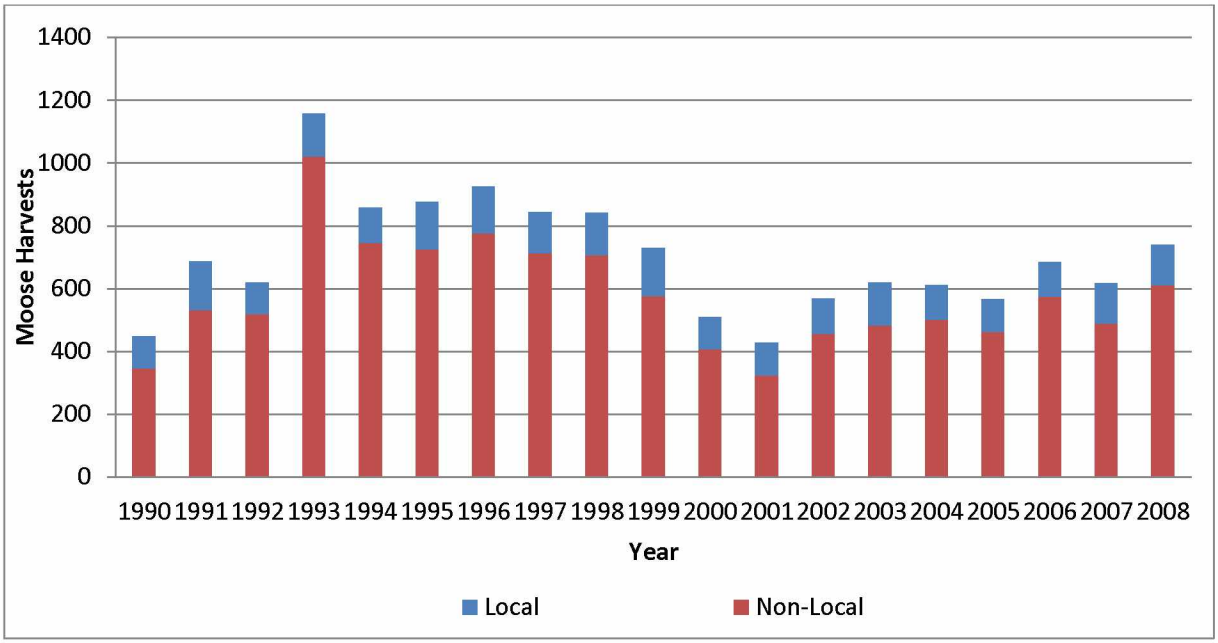

Figure 5-9. Total Number of Moose Harvested and Number Harvested by Area of Residence, 1990-2008

5.4 The Copper Basin CSH, 2009-Present

In an effort to increase the hunting opportunity for local residents, in 2009, the Ahtna Tene Nene' subsistence committee proposed the Copper Basin CSH program. It was established because the existing permit system, Tier II, was not providing adequate subsistence harvest opportunity to locals, particularly the young and new residents of the Copper River basin. The CSH permit program allows communities or groups of 25 or more to apply annually to harvest the total 100 any-bull moose quota in GMU 13. A group can choose to apply for a Copper Basin moose CSH permit, a Copper Basin caribou CSH permit, or both. These groups may select, from their group members, individual harvesters who may possess particular expertise in hunting to harvest wildlife resources on behalf of the community or group. The hunt conditions in this Copper Basin moose CSH permit program are made for the purposes of notifying the community/group of users of how to use the moose in a manner consistent with the customary and traditional use pattern.

Customary and traditional uses of Copper Basin moose are thoroughly described in 2006-170-BOG and 2011-184-BOG. The Board of Game found that the subsistence pattern in the Copper Basin is characterized by thorough use of most of the harvested animal. Therefore, all participants in the Copper Basin Moose CSH hunt must salvage for human consumption: 1. All edible meat from the forequarters, hindquarters, ribs, neck, and backbone, as well as the head, heart, liver, kidneys, stomach, and hide; and 2. During the fall season, meat of the forequarters, hindquarters, and ribs must remain naturally attached to the bones until delivered to the place where it is processed for human consumption. The board also found that the subsistence pattern is characterized by meaningful communal sharing. At least one communal sharing event featuring moose harvested under the terms of a Copper Basin CSH hunt must be held. A complete description of the event (date, location, number of participants, amount of meat shared, and so forth) must be included in the final hunt report, to be submitted by the group / community coordinator.

In 2010, after the CSH was administered for a single regulatory year, Kenneth Manning and the Alaska Fish and Wildlife Conservation Fund (the non-profit organization associated with the Alaska Outdoor Council) brought a suit against the program to the Alaska Supreme Court (Alaska 2010). The court found the permitting system violated Article VIII of Alaska's constitution because it had a local preference in its regulations and it found that the BOG did not have the authority to designate a private entity (Ahtna Tene Nene' Subsistence Committee) as a hunt administrator.

In response to the court's ruling, in 2011, the BOG met to deliberate on Southcentral region proposals and adopted a revised CSH. This permitting system contained similar hunt conditions and reporting requirements but no longer gave a rural preference. Furthermore, the 2011 BOG meeting findings

recognized the range of uses previously described by the "community-based" pattern by Ahtna Athabascans and other rural residents but also recognized a new individual, household, and extended family level pattern which exhibited the eight criteria used to establish the subsistence permitting system (2011-184-BOG). Basically, the latter pattern established in 2011 allowed all Alaskans to participate in the CSH. For example, a group of friends living in Kenai could sign up for the CSH and follow the hunt conditions.

From 2011 to 2013 there were few proposals to amend the Copper Basin moose CSH regulations and conditions. However, there were several pending litigations concerning the CSH. In 2013, participation hunter more than doubled than that of the previous year. Due to this increased participation, there was an over harvest of any-bull moose in the 13A subunit (closest to the Matanuska-Susitna Borough), which subsequently changed the moose bag limit for the CSH from one any-bull moose to one bull moose with general season antler requirements. This occurred only 5 days after the August 10 opener and was disappointing to CSH moose hunters that had not hunted, especially locals.

After the 2013 Copper Basin moose CSH season, the BOG formed a subcommittee that included the major stakeholders for the subsistence moose in GMU 13: representatives from Ahtna, the Alaska Outdoor Council, advisory councils from GMU 13, ADF&G staff, and BOG members. The subcommittee was directed by the board to work on two issues dealing with the moose CSH:

1. How to curb the increasing urban participation in the CSH program (particularly the moose CSH)
2. How to manage the moose harvest in heavily hunted areas that affect CSH opportunity in the remaining hunt areas

This subcommittee worked together to propose regulations to mitigate the issues identified by the BOG and several were adopted at the 2015 BOG meeting. To curb the increasing participation in the moose CSH program, the subcommittee proposed a regulation that required a two year commitment by each CSH group. It also proposed regulations to the board that required stricter reporting timeline (within 24 hours of kill) and subunit bag limits so overharvest in one area would not shut down hunting in other areas.

The subcommittee also explored other regulatory changes that might deter CSH participation. For example, the subcommittee talked about limiting CSH season to the Monday through Friday and no motor vehicle use while hunting moose or caribou. These proposals did not receive enough support to be

submitted as proposals but it provided a forum for major stakeholders to discuss solutions to the issues identified by the board.

In 2014, the BOG adopted a "locking tag regulation" for the Copper Basin Moose CSH. One out of every three households received locking tags from their respective hunt coordinator. In addition, the BOG adopted regulations that required hunters to report their harvest within 24 hours. These amendments to the Copper Basin moose CSH as well as the 2014 closure of subunit 13A helped mitigate the overharvest issue for the 2014 season.

At the 2015 BOG Southwest and Southcentral meeting a suite of proposal were accepted that will change the CSH permitting system. The BOG accepted a new definition of "community" or "group" as: a group of people linked by a common interest in, and participation in uses of, an area and the wildlife populations in that area, that is consistence with the customary and traditional use pattern of that wildlife population and area as defined by the board (2006-170-BOG). The BOG adopted a CSH moose hunting bag limits and ADF&G will establish individual quotas in each subunit (13A, 13B, etc.) of the Copper Basin CSH for the moose that do not meet general season antler requirements (any-bulls) in Units 11 and 13 and attempt to achieve the quota for each subunit regardless of whether or not the total allocation for the CSH program, currently set at 100 any bulls, has been met. Additionally, Unit 11 (where there have been no CSH harvests) may have a reduced quota for any bull moose so that there will be an increased quota in Unit 13 subunits for any bull moose.

Surprisingly, moose hunter and harvest estimates, local participation and harvests declined during this time period (Table 5-1; and Figures 5-10and 5-11), while moose populations were increasing. Local harvest dropped below 100 moose for the first time in 20 years down to a low of 54 moose in 2013. Biologists attribute the increase in moose population during this time period due to predator control of wolf and bear populations instituted in 2003 (Schwanke 2012).

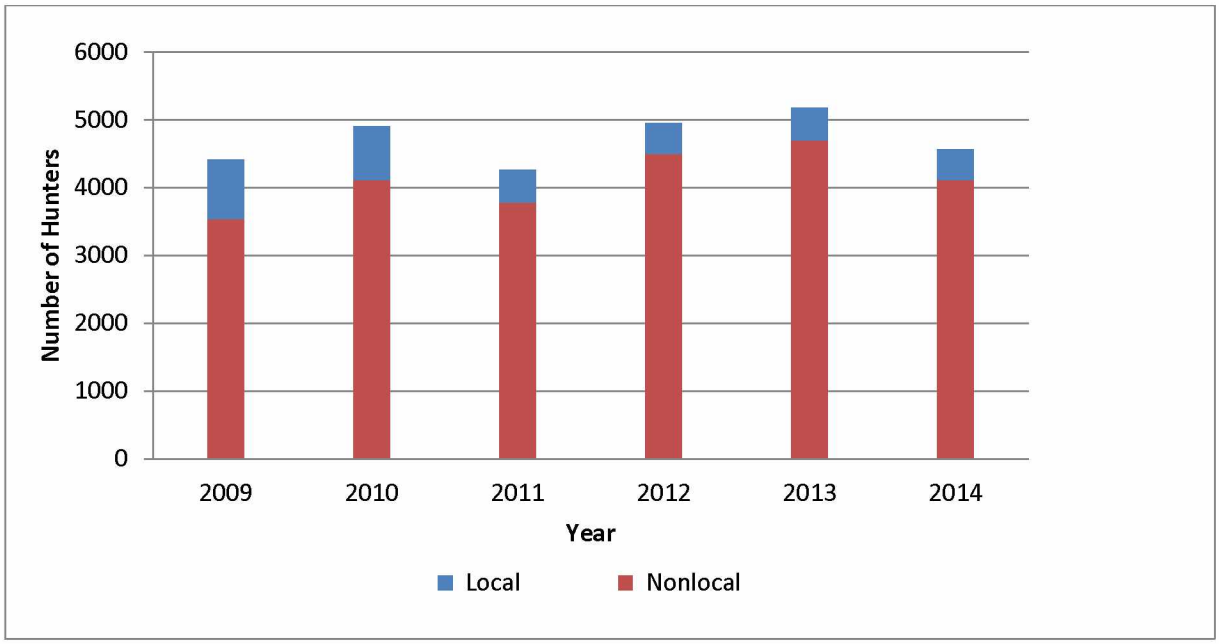

Figure 5-10. Total Number of Moose Hunters and Number of Hunters Area of Residence, 2009-2014

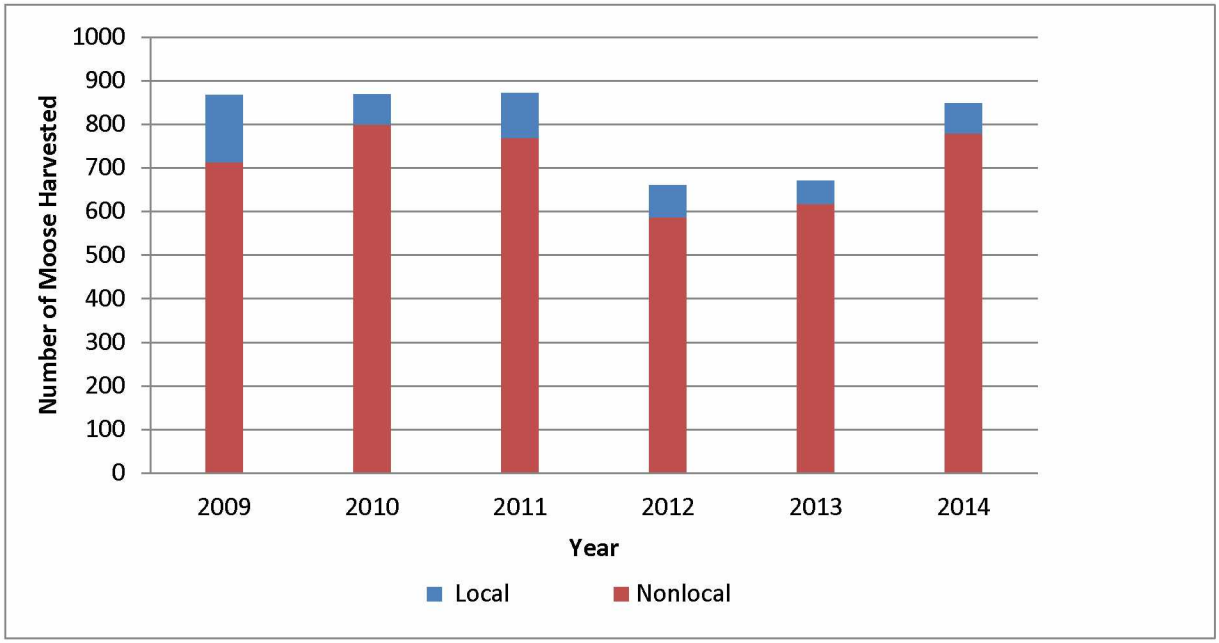

Figure 5-11. Total Number of Moose Harvested and Number Harvested by Area of Residence, 2009-2014

5.5 Copper Basin CSH Harvest Demographics

In 2009, there was only one community, the Ahtna Tene Nene' Customary and Traditional Committee, enrolled in the Copper Basin moose CSH (see Table 5-5). The Ahtna community had 246 households, 378 individuals, and harvested the entire quota, 100 bulls, with 70 of these bulls qualifying as "any bulls." (see Table 5-6).

Table 5-5. Communities or Groups enrolled in the CSH, 2009-2014

Regulatory Year	Groups	Households	Participants
2009	1	246	378
2010	-	-	-
2011	9	407	753
2012	19	459	961
2013	45	955	2066
2014	43	893	1771

Source: ADF&G Winfonet

Table 5-6. CSH Moose Harvest by Community or Group, 2009-2014

Region	Total Bull Moose ('bulls') Harvested ('any bulls')				
	2009	2011	2012	2013	2014
Copper Basin	100 (71)	56 (39)	37 (21)	28 (12)	33 (18)
Anchorage		13 (7)	28 (22)	48 (31)	45 (25)
Mat-Su		14 (11)	23 (21)	62 (37)	60 (36)
Kenai		3 (2)	9 (8)	13 (10)	10 (8)
Other		0 (0)	1 (1)	3 (1)	2 (1)
Totals		86 (59)	98 (73)	151 (91)	150 (88)

Source: ADF&G Winfonet

There was no CSH hunt for the 2010 season. In 2011, the rural preference was removed and participation increased to 9 groups, 407 households, and 753 individuals. Copper Basin communities harvested the majority of the quota (39 any bulls out of 56 total bulls), Matanuska-Susitna communities harvested the second most (11 any bulls out of 14 total bulls), Anchorage communities harvested the third most (7 any bulls out of 13 total bulls), and Kenai communities harvested the least (2 any bulls out of 3 total bulls) (see Figure 5-12).

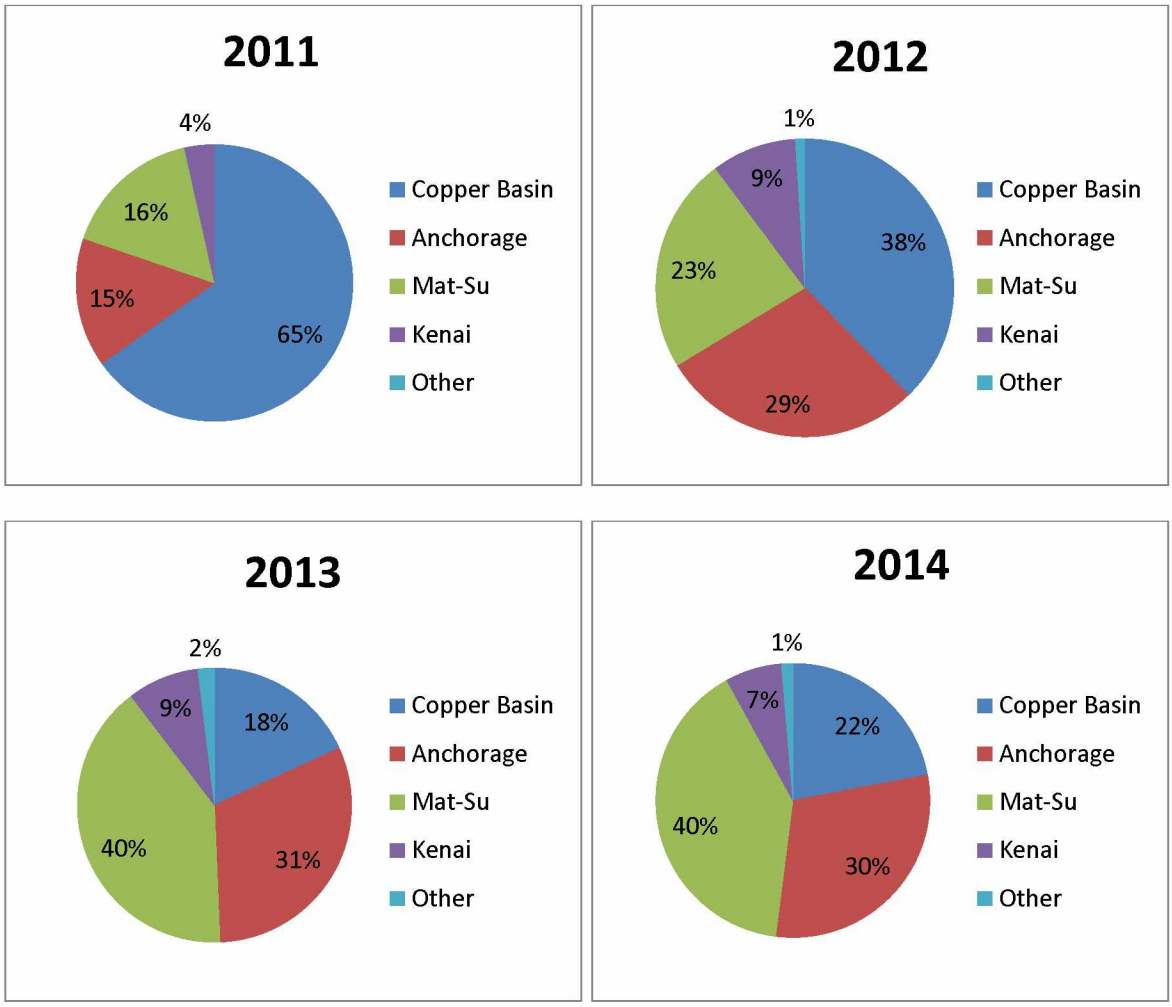

Figure 5-12. Percentage of CSH Moose Harvest by Residence of Community or Group, 2011-2014

In 2012, participation in the Copper Basin moose CSH increased again to 19 groups, 459 households, and 961 individuals. Copper Basin communities still harvested a majority of the bull moose quota but their harvests declined slightly from 2011 (21 any bulls out of 37 total bulls). Anchorage communities harvested the second most (22 any bulls out of 28 total bulls), Matanuska-Susitna communities harvested the third most (21 any bulls out of 23 total bulls), followed by Kenai communities (8 any bulls out of 9 total bulls), and a Juneau community harvested the least (1 any bull).

In 2013, participation in the Copper Basin moose CSH doubled to 45 groups, 955 households, and 2066 individuals. Copper Basin communities no longer harvest the majority of the CSH bull quota in 2013. Matanuska-Susitna communities harvested the most (37 any bulls out of 62 total bulls), Anchorage

communities harvested the second most (31 any bulls out of 48 total bulls), Copper Basin communities harvested the third most (12 any bulls out of 28 total bulls, followed by Kenai communities (10 any bulls out of 13 total bulls), and a Valdez community harvested the least (1 any bull out of 3 total bulls).

In 2014, participation leveled off in the Copper Basin moose CSH with 45 groups, 893 households, and 1771 individuals. Matanuska-Susitna communities harvested the majority of the moose quota (36 any bulls out of 60 total bulls), Anchorage communities harvested the second most (25 any bulls out of 45 total bulls), Copper Basin communities harvests increased from the previous year but still only recorded the third most (18 any bulls out of 33 total bulls, followed by Kenai communities (8 any bulls out of 10 total bulls), and a Valdez community harvested the least (1 any bull out of 2 total bulls).

6. Discussion: Recommendations for Future Allocation of Subsistence Moose in Game Management Unit 13

Alaska's wildlife management and allocation process is unique in the U.S. and the world. Even though the BOG Findings (2006-170-BOG) recognize how vital subsistence hunting opportunity is to sustaining the subsistence way of life for the Ahtna Villages and other communities in the Copper River Basin, the board has to work within the constitutional and regulatory frameworks to provide opportunity for all residents. The heart of this allocation issue for the state is to find the balance between opportunity for urban and rural subsistence hunters.

The BOG has made consistent efforts to provide state subsistence permitting opportunity to rural residents of the Copper River Basin. This is apparent by reviewing language in BOG Findings relating to unit 13 as well adopting proposals to provide for rural subsistence moose hunters. However, the board's hands are tied by the constitution. The board must continue to provide sustainable hunting opportunity for all residents of the state. With this in mind, I have developed some recommendations to provide a better balance of subsistence permits to rural hunters or those that the BOG identified as being more dependent on wildlife resources.

Before the 2015 BOG Central Southwest and Southcentral meeting, I attended a CSH subcommittee work session that included of the major stakeholders for subsistence moose in GMU 13: representatives from Ahtna, the Alaska Outdoor Council, advisory councils from GMU 13, ADF&G staff, and BOG members. The subcommittee was directed by the board to work on two issues dealing with the moose CSH:

1. How to curb the increasing urban participation in the CSH program (particularly the moose CSH)

2. How to manage the moose harvest in heavily hunted areas that affect CSH opportunity in the remaining hunt areas

This subcommittee worked together to propose regulations to mitigate the issues identified by the BOG and several were adopted at the 2015 BOG meeting. To curb the increasing participation in the moose CSH program, the subcommittee proposed a regulation that required a two year commitment by each CSH group. It also proposed regulations to the board that required stricter reporting timeline (within 24 hours of kill) and subunit bag limits so overharvest in one area would not shut down hunting in other areas.

The subcommittee also explored other regulatory changes that might deter CSH participation. For example, the subcommittee talked about limiting CSH season to the Monday through Friday and no motor vehicle use while hunting moose or caribou. These proposals did not receive enough support to be submitted as proposals but it provided a forum for major stakeholders to discuss solutions to the issues identified by the board.

After sitting through a CSH subcommittee meeting and the Southcentral BOG meeting, I think the board has done nearly everything within their regulatory authority to provide opportunity for rural subsistence hunters. However, I have come up with three options that may help balance the opportunity for state subsistence permits in unit 13.

1. In my brief experience at BOG meetings, I have not heard any board members or stakeholders talk about creating subsistence moose opportunity in other GMUs close to urban areas. Perhaps increasing subsistence hunter opportunity in other units would alleviate the participation in the GMU 13 moose CSH?

2. I propose that the BOG develop a sport hunt that would offer any-bull harvest opportunity in GMU 13. It could either be a drawing hunt or a quota attached to the general season harvest. ADF&G could use this as another management tool because it could require participants to harvest in certain subunits during specific times of the year. This would help alleviate the participation in the Copper Basin moose CSH and the competition between users by spatially and temporally distributing the amount of hunters in the field.

3. I propose that the board provide education and outreach about subsistence hunting and fishing to everyone that applies for CSH permits. Subsistence hunting and fishing was established to provide opportunity for those that are most reliant on a resource. I encountered many urban and rural CSH hunters during my research and found that there is a large disparity between them. If the BOG cannot provide a permitting system that provides opportunity to those that need it most, perhaps it is time that they educate

individuals that apply for subsistence permits. Ultimately, subsistence permitting systems can be gamed so efforts to educate individuals will help maintain the integrity of the system by informing individuals.

As a Graduate Intern for ADF&G, I helped monitor the reporting process for the Copper Basin moose CSH. In conversations with the area biologist of GMU 13, I understand that there will be the same amount of Copper Basin moose CSH groups in 2015 as there were in 2014 (43 groups). This does not bode well for Ahtna tribal members and other rural residents as they were only able to harvest 22% of the any bull quota in 2014. I predict a similar percentage next year and subsequent years. Working within Alaska's constitutional framework and the increasing urban hunter constituency, I do not see the balance returning to the local subsistence hunters' favor. Instead, local subsistence hunters will need to rely more heavily on the federal subsistence permitting system in GMU 13 and surrounding areas to obtain their subsistence permits.

After spending time with Ahtna tribal members and attending meetings about resource allocation, it seems that this will not be enough for the Ahtna people. Many villages and individuals do not use federal lands to hunt because there is not much in GMU 13. While 7 of the 8 Ahtna villages are located close to Wrangell St. Elias National Park, Chitina is the only village that has adjacent road access. Additionally, the majority of Ahtna traditional hunting grounds lay either on state, village, or Native Corporation lands. All these lands are under the jurisdiction of state management. Ahtna has restricted access to their lands but much of their lands were selected for other income generating opportunities. Additionally, Ahtna people complain of urban hunters trespassing on their lands during hunting season. The land tenure of the region and its immense size make it difficult to mark land ownership and this makes it difficult for non-local hunters to know what land is available to hunt.

Other local residents of the Copper River Basin are willing to drive a bit further to obtain the rural priority that federal lands offer. For example, while I was interviewing residents in Tonsina for the Division of Subsistence comprehensive harvest surveys, many individuals talked about taking advantage of the National Park or BLM land to harvest their moose. It seems that other local residents are willing to drive a bit further to harvest moose and unlike the Ahtna they are not tied to a traditional hunting camp.

Ahtna's consistent and increasing involvement with the management and allocation of natural resource process indicates the importance of the Ahtna-animal (moose) relationship. The Ahtna people and the Ahtna Native Corporation believe the allocation issue as more about receiving enough fish and game to maintain their way of life and doing it in a self-determining manner.

7. Conclusion

Hunting GMU 13 moose has been limited by permits since 1960, but subsistence uses were not addressed until 1983. During the 20th century, roads connected Alaska's growing population centers with the Copper Basin, and a new urban-based pattern of hunting and using GMU 13 moose developed. When the BOG originally determined there were C&T uses of the moose in GMU 13, it recognized these subsistence uses originated with the Ahtna Athabascan communities in the Copper River basin, and were later adopted by other Alaska residents (BOG 1983; 2006-170-BOG; 2011-184-BOG).

Under the state's rural preference laws in the 1980s, local hunters (generally residents of GMU 13) were allocated a set number of drawing permits and registration permits per household. Local harvests were at all-time high during this time period. The Alaska Supreme Court's 1989 McDowell decision eliminated the rural preference, placed the state out of compliance with federal law, and resulted in a dual subsistence management system of federal and state hunts. As a result of this ruling, all Alaskans must be provided an opportunity to participate in subsistence. However, due to the strong interest in hunting GMU 13 moose by urban Alaskans, the BOG concluded that all of the allowable harvest was necessary for subsistence uses. Consequently, GMU 13 moose were limited by Tier II permit from 1995-2008.

In 2006, the BOG adopted new findings and regulations that required subsistence hunters of GMU 13 moose to more closely comply with the customary and traditional pattern of hunting. In 2009, the BOG adopted a CSH permit system to accommodate hunters choosing to hunt according to the 2006 finding. Also in 2009, the BOG eliminated the Tier II hunt for GMU 13 moose. In the original CSH, the BOG gave administrative authority to Ahtna tribes with the help of ADF&G. Ahtna harvested the entire quota of 100 any bulls during the first year. This not only provided Ahtna with enough moose to sustain their way of life but it also built their wildlife management capacity.

In 2010, the Alaska Supreme Court (Alaska 2010) ruled that the CSH violated provisions in the state's constitution, including one that maintains natural resources are "for common use." The judge also found a problem with the BOG handing over administration of the hunt to Ahtna Inc. The BOG is not authorized to place control of the state's game resource with a private entity. This violated the constitution's public trust doctrine.

In response to the court's ruling, the BOG met to deliberate on Southcentral region proposals in 2011 and adopted a revised CSH. This permitting system contained similar hunt conditions and reporting requirements but no longer gave a rural preference. Furthermore, the 2011 BOG meeting findings recognized the range of uses previously described by the "community-based" pattern by Ahtna

Athabascans and other rural residents but also recognized a new individual, household, and extended family level pattern which exhibited the eight criteria used to establish the subsistence permitting system.

Today, the CSH remains a state subsistence hunting permit system for GMU 13 moose. Local subsistence users, especially Ahtna Athabascans, continue to complain that the balance of subsistence hunting opportunity favors urban hunters. The BOG continues to make efforts to adopt proposals that will provide opportunity for those who are more reliant on the resource. However, Alaska's constitution and the growing amount of urban subsistence hunters make it difficult for the board to allocate to subsistence hunters who are more dependent on moose.

In conclusion, my research focused on the Ahtna and their claims towards GMU 13 moose and how subsistence regulations affected local residents of Copper Basin communities. In this project, my scope was limited to the Ahtna perspective because the Ahtna have a historical claim towards GMU 13 moose - one that is recognized in subsistence regulations and BOG findings. The BOG even adopted the CSH, which obviously had rural and even ethnic preferences in its regulations. Other stakeholders do have a claim towards GMU 13 moose but were not considered in this study. Further research is recommended to develop the arguments that other stakeholders have towards GMU 13 moose.

My experience with Ahtna tribal members indicates how important subsistence activities are to the people. Their culture is predicated on hunting, fishing, trapping, and sharing the harvest with community members. This is done to maintain relationships with each other and with the animals they harvest. The Ahtna way of life has existed for thousands of years but it is changing. The Ahtna will continue to practice their customary and traditional hunting patterns and they will continue to fight for their right to maintain hunting opportunity for moose in GMU 13. They will also continue to build their natural resource management capacity so that they have more moose on their land and a greater ability to control this important aspect of their culture.

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Appendix A. GMU 13 Moose Hunting Regulations and Seasons

Year	Subunit	Season Dates	Bag Limit
1960-64	13	Aug. 20-Sept. 30 Nov. 1-Nov. 30	1 moose; antlerless moose may be taken only from Sept. 24-Sept. 30.
1965	13	Aug. 20-Sept. 30 Nov. 1-Nov. 30	1 bull.
1966	13	Aug. 20-Sept. 30 Nov. 1-Nov. 30	1 moose: antlerless moose may be taken only from Sept. 29-Sept. 30.
1967, 68	13	Aug. 20-Sept. 30 Nov. 1-Nov. 20	1 moose; antlerless moose by be taken only from Sept. 28-Sept. 30 except 13A East was closed to antlerless harvests.
1969	13	Aug. 20-Sept. 30 Nov. 1-Nov. 20	1 bull.
1970, 71	13A,D	Aug. 20-Sept. 20 Nov. 1-Nov. 20	1 bull.
	13B,C	Aug. 20-Sept. 20 Nov. 1-Nov. 20	1 moose. 400 antlerless permits for 13B. 300 antlerless permits for 13C.
1972	13A	Aug. 20-Sept. 20 Nov. 1-Nov. 20	1 bull.
	13B,C,D,E	Aug. 20-Sept. 20 Nov. 1-Nov. 20	1 bull.
1973	13A,B,D,E	Aug. 20-Sept. 10	1 bull.
	13C	No open season.	
1974	13	Aug. 20-Sept. 20	1 bull.
1975-79	13	Sept. 1-Sept. 20	1 bull.
1980-82	13	Sept. 1-Sept. 20	1 bull having antler spread of at least 36" or 3 brow tines on at least one side.
1983	13	Sept. 1-Sept. 20	Sport hunters: 1 bull having antler spread of at least 36" or 3 brow tines on at least one side. Subsistence hunters: 1 bull by drawing permit only. 100 permits were issued.
1984	13 except portions of 13B & E	Sept. 1-Sept. 20	Sport hunters: 1 bull having antler spread of at least 36" or 3 brow tines on at least one side. Subsistence hunters: 1 bull by drawing permit only. 100 permits were issued.
	13B & E from Maclaren River to Nenana River	Sept. 1-Sept. 20	Sport hunters: 1 bull having a spiked or forked antler on at least one side.

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Year	Subunit	Season Dates	Bag Limit
	13A West	Sept. 1-Sept. 20	Sport hunters: 1 bull having a spiked or forked antler on at least one side.
1985			
	13 except portions of 13B & E	Sept. 1-Sept. 20	Sport hunters: 1 bull having antler spread of at least 36" or 3 brow tines on at least one side. Subsistence hunters: 1 bull by drawing permit only. 100 permits were issued.
	13B & E from Maclaren River to Nenana River	Sept. 1-Sept. 20	Sport hunters: 1 bull having a spiked or forked antler on at least one side.
	13A West	Sept. 1-Sept. 20	Sport hunters: 1 bull having a spiked or forked antler on at least one side.
1986			
	13 except 13A West	Sept. 1-Sept. 20	Sport hunters: 1 bull having antler spread of at least 36" or 3 brow tines on at least one side. Subsistence hunters: 1 bull by registration permit only. Unlimited numbers of permits were issued.
	13A West	Sept. 1-Sept. 20	Sport hunters: 1 bull having a spiked or forked antler on at least one side.
1987			
	13 except 13A West	Sept. 1-Sept. 20	Sport hunters: 1 bull having a spiked or forked antler on at least one side.
		Aug. 20-Sept. 20	Subsistence hunters: 1 bull by registration permit only. Only one permit was issued per household.
	13A West	Sept. 1-Sept. 20	Sport hunters: 1 bull having a spiked or forked antler on at least one side. However, 1 bull with any size antlers may be taken by drawing permit only; 100 permits were issued.
1988			
	13 except 13A West	Aug. 25-Sept. 20	Subsistence hunters: One moose; however bulls may be taken by registration permit only; only one permit were issued per household. Cows may be taken in 13E by drawing permit only. 13 permits were issued. The taking of cow accompanied by calves is prohibited.
	13A West	Sept. 1-Sept. 20	Resident and nonresident hunters: One bull with 36 inch antlers; however, in Unit 13E, one cow may be taken by drawing permit only; 12 permits were issued to Alaskan residents only. The taking of cows accompanied by calves is prohibited.
		Sept. 1-Sept. 20	Subsistence hunters: one moose; however bulls must have a spike fork antler, cows may be taken by drawing permit only; 25 permits were issued. The taking of cows accompanied by calves is prohibited.

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Year	Subunit	Season Dates	Bag Limit
		Sept. 1-Sept. 20	Residents and nonresident hunters: One moose; bulls must have a spike-fork antler, cows may be taken by drawing permit only, 25 permits were issued. The taking of cows accompanied by calves is prohibited.
1989			
	13 except 13A West	Aug. 25-Sept. 20	Subsistence hunters: One moose; however bulls may be taken by registration permit only; only one permit was issued per household. Antlerless moose hunts were canceled by E.O.
		Sept. 1-Sept. 20	Resident and nonresident hunters: One moose; bulls must have 36 inch antlers.
		Aug. 25-Sept. 20	Subsistence hunters: One moose; however bulls may be taken by registration permit only; only one Antlerless moose hunts was canceled by E.O.
	13A West	Sept. 1-Sept. 20	Residents and nonresident hunters: One moose; bulls must have a spike-fork antler; however, up to 300 drawing permits were issued for bull moose with any size antlers. Antlerless moose hunts were cancelled by E.O.
1990			
	13 except 13A West	Sept. 5-Sept. 9 Dec. 1-Dec. 31	Alaskan residents: One bull with 36-inch antlers; the allowable harvest for all of Unit 13 is 800 bulls; up to 400 may be taken by permit only during the winter hunt. The winter allocation was reduced from 400 to 75 by subsequent emergency order. Nonresidents: No open season.
	13A West	Sept. 5-Sept. 9 Dec. 1-Dec. 31	Alaskan residents: One bull with spike or fork antlers; during the winter hunt bulls may be taken by Tier II permit only. Nonresidents: No open season.
	Federal Subsistence: Unit 13	Sept. 1-Sept. 20	1 bull moose by Federal registration permit only; Only 1 permit was issued per household.
1991			
	13 except 13A West	Sept. 5-Sept. 11	Alaskan residents: One bull with 36-inch antlers. Nonresidents: No open season.
	13A, that portion northwest of the Black River	Sept. 5-Sept. 11	Alaskan residents: One bull with spike-fork or 50-inch antlers. Nonresidents: No open season.

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Year	Subunit	Season Dates	Bag Limit
	13A, that portion west of the Lake Louise Road, Lake Louise, Lake Susitna, Tyone River, and southeast of the Black River	Sept. 5-Sept. 11	Alaskan residents: One bull with spike-fork antlers. Nonresidents: No open season.
	Federal Subsistence: Unit 13	Aug. 25-Sept. 20	1 bull moose by federal registration permit only; Only 1 permit were issued per household.
1992	13A, that portion northwest of the Black River.	Sept. 1-Sept. 14	Alaskan residents: One bull with spike-fork or 50-inch antlers per household. The use of any motorized vehicle, including aircraft but excepting boats, for for hunting moose or for access to hunt moose from Aug. 26-Sept. 7 is prohibited, including transportation of moose hunters or parts of moose; however, this did not apply to a motorized vehicle on a State or borough-maintained highway/railroad. Nonresidents: No open season.
	13A, that portion west of the Lake Louise Road, Lake Susitna, Tyone River, and southeast of Black River.	Sept. 1-Sept. 14	Alaskan residents: One bull with spike-fork antlers per household. The use of any motorized vehicle, including aircraft, but excepting boats, for hunting moose or for access to hunt moose from Aug. 26-Sept. 7 is prohibited, including transportation of moose hunters or parts of moose; however this does not apply to a motorized vehicle on a State or borough maintained highway/railroad. Nonresidents: No open season.
	Remainder of Unit 13	Sept. 1-Sept. 14	Alaskan residents: One bull with 36-inch antlers per household. The use of any motorized vehicle, including aircraft but excepting boats, for hunting moose or for access to hunt moose from Aug. 25-Sept.7 is prohibited, including transportation of moose hunters or parts of moose; however, this does not apply to a motorized vehicle on a State or borough-maintained highway/road. Nonresidents: No open season.
	Federal Subsistence: Unit 13	Aug. 25-Sept. 20	1 bull moose by Federal registration permit only; Only 1 permit will be issued per household.
1993	13A, that portion between Kosina Creek and the Oshetna River	Aug. 20-Sept. 20 Sept. 1-Sept. 15	Alaskan residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on one side; however, one cow moose may be taken by drawing permit only during Sept. 1-Sept. 15; up to 25 permits were issued.

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Year	Subunit	Season Dates	Bag Limit
	13A, that portion between the Oshetna River, and the Little Nelchina River, and west of the Lake Louise Road, Lake Susitna, and Tyone River	Aug. 20-Sept. 20 Sept. 1-Sept. 15	Alaskan residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on one side; however, one cow moose may be taken by drawing permit only during Sept. 1-Sept. 15; up to 25 permits were issued.
	13A, that portion between the Little Nelchina and Aspen Cr.	Aug. 20-Sept. 20 Sept. 1-Sept. 15	Alaskan residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on one side; however, one cow moose may be taken by drawing permit only during Sept. 1-Sept. 15; up to 25 permits were issued.
	Remainder of Unit 13	Aug. 20-Sept. 20	Alaskan residents and nonresidents: One bull with spike-fork antlers or 50-inch antlers or antlers with 3 or more brow tines on one side.
	Federal Subsistence: Unit 13	Aug. 25-Sept. 20	1 bull moose by Federal registration permit only; Only 1 permit was issued per household.
1994			
	13A, that portion between Kosina Creek and the Oshetna River:	Aug. 20-Sept. 20 Sept. 1-Sept. 15	Alaskan residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on one side; however, one cow moose may be taken by drawing permit only during Sept. 1-Sept. 15; up to 25 permits were issued.
	13A, that portion between the Oshetna River, and the Little Nelchina River, and west of the Lake Louise Road, Lake Susitna, and Tyone River	Aug. 20-Sept. 20 Sept. 1-Sept. 15	Alaskan residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on one side; however, one cow moose may be taken by drawing permit only during Sept. 1-Sept. 15; up to 25 permits were issued.
	13A, that portion between the Little Nelchina River,and the Chickaloon River, and that portion within the Talkeetna River drainage south of Aspen Cr.	Aug. 20-Sept. 20 Sept. 1-Sept. 15	Alaskan residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on one side; however, one cow moose may be taken by drawing permit only during Sept. 1-Sept. 15; up to 25 permits were issued.
	Remainder of Unit 13:	Aug. 20-Sept. 20	Alaskan residents and nonresidents: One bull with spike-fork antlers or 50-inch antlers or antlers with 3 or more brow tines on one side.
	Federal Subsistence: Unit 13	Aug. 25-Sept. 20	1 bull moose by Federal registration permit only; Only 1 permit was issued per household.

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Appendix A. Page 6 of 9

Year	Subunit	Season Dates	Bag Limit
1995	Unit 13	Aug. 1-Aug. 15	Residents: One bull by **Tier II** permit only (150 permits)
		Aug. 20-Sept. 20	Residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	1 bull moose by Federal registration permit only; Only 1 permit was issued per household.
1996	Unit 13	Aug. 1-Aug. 15	Residents: One bull by Tier II permit only (150 permits) with 3 or more brow tines on at least one side.
		Aug. 20-Sept. 20	Residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
1997	Unit 13	Aug. 1-Aug. 19	Residents: One bull by Tier II permit only (150 permits)
		Aug. 20-Sept. 20	Residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
1998	Unit 13	Aug. 1-19	Residents: One bull by permit only by Tier II (150 permits)
		Aug. 20-Sept. 20	Residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
1999	Unit 13	Aug. 15-Aug. 31	Residents: One bull by Tier II permit only (150 permits)
		Sept.1-Sept. 20	Residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2000	Unit 13A, 13B, and13E	Aug. 15-Aug. 31	Residents: One bull by Tier II permit only (150 permits)
		Sept. 1-Sept.15	Residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side.
	Unit 13C and 13D	Aug. 15-Aug. 31	Residents: One bull by Tier II permit only (150 permits)
	Unit 13C and 13D	Sept. 1-Sept.20	Residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.

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Appendix A. Page 7 of 9

Year	Subunit	Season Dates	Bag Limit
2001	Unit 13	Aug. 15-Aug. 31 Sept. 1-Sept.20	Residents: One bull by Tier II permit only (150 permits) Residents and nonresidents: One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2002	Unit 13	Aug. 15-31 Sept. 1-Sept.20	Residents: One bull by Tier II permit only (150 permits) One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side. Nonresidents: No open season.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2003	Unit 13	Aug. 15-31 Sept. 1-Sept.20	Residents: One bull by Tier II permit only (150 permits) One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side. Nonresidents: No open season.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2004	Unit 13	Aug. 15-31 Sept. 1-Sept.20	Residents: One bull by Tier II permit only (150 permits) One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side. Nonresidents: No open season.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2005	Unit 13	Aug. 15-31 Sept. 1-Sept.20	Residents: One bull by Tier II permit only (150 permits) One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side. Nonresidents: No open season.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2006	Unit 13	Aug. 15-31 Sept. 1-Sept.20	Residents: One bull by Tier II permit only (150 permits) One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side. Nonresidents: No open season
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2007	Unit 13	Aug. 15-31 Sept. 1-Sept.20	Residents: One bull by Tier II permit only (150 permits) One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side. Nonresidents: No open season.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.

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Appendix A. Page 8 of 9

Year	Subunit	Season Dates	Bag Limit
2008	Unit 13	Aug. 15-31	Residents: One bull by Tier II permit only (150 permits)
		Sept. 1-Sept.20	One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side.
			Nonresidents: No open season.
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2009	Unit 13	Aug. 10- Sept. 20	Residents: One bull by Ahtna Community Harvest Hunt
		Sept. 1-Sept.20	One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side.
	Unit 13A, B & C	Sept. 1-Sept.20	One bull by 5 Drawing Hunts - 160 total permits
	Unit 13	Sept. 1-Sept.20	Nonresidents: One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side.
			5 Drawing Hunts - 50 total permits
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2010	Unit 13	Aug. 15-Aug. 25	Residents: One bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side.
		Sept. 1-Sept.20	One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side.
	Unit 13A, B & C	Sept. 1-Sept.20	One bull by 5 Drawing Hunts - 325 total permits
	Unit 13	Sept. 1-Sept.20	Nonresidents: One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side.
			5 Drawing Hunts - 110 total permits
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2011	Unit 13	Aug. 10- Sept. 20	Residents: One bull by Community Subsistence Harvest Hunt
		Sept. 1-Sept.20	One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side.
	Unit 13A, B & C	Sept. 1-Sept.20	One bull by 5 Drawing Hunts - 225 total permits
	Unit 13	Sept. 1-Sept.20	Nonresidents: One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side.
			5 Drawing Hunts - 65 total permits
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2012	Unit 13	Aug. 10- Sept. 20	Residents: One bull by Community Subsistence Harvest Hunt
		Sept. 1-Sept.20	One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side.
	Unit 13A	Sept. 1-Sept.20	One antlerless moose by Drawing - 10 total permits
	Unit 13A, B & C	Sept. 1-Sept.20	One bull by 5 Drawing Hunts - 104 total permits
	Unit 13	Sept. 1-Sept.20	Nonresidents: One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side.
			5 Drawing Hunts - 105 total permits
	Federal Subsistence: Unit 13	Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.

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Appendix A. Page 9 of 9

Year	Subunit	Season Dates	Bag Limit
2013	Unit 13	Aug. 10- Sept. 20	Residents: One bull by Community Subsistence Harvest Hunt
		Sept. 1-Sept.20	One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side.
	Unit 13A	Sept. 1-Sept.20	One antlerless moose by Drawing - 10 total permits
	Unit 13A, B & C	Sept. 1-Sept.20	One bull by 5 Drawing Hunts - 225 total permits
	Unit 13	Sept. 1-Sept.20	Nonresidents: One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side.
			5 Drawing Hunts - 105 total permits
Federal Subsistence: Unit 13		Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.
2014	Unit 13	Aug. 10- Sept. 20	Residents: One bull by Community Subsistence Harvest Hunt
		Sept. 1-Sept.20	One bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on at least one side.
	Unit 13A	Sept. 1-Sept.20	One antlerless moose by Drawing - 10 total permits
	Unit 13A, B & C	Sept. 1-Sept.20	One bull by 5 Drawing Hunts - 225 total permits
	Unit 13	Sept. 1-Sept.20	Nonresidents: One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side.
			5 Drawing Hunts - 105 total permits
Federal Subsistence: Unit 13		Aug. 1-Sept. 20	One bull moose by Federal registration permit only; Only 1 permit was issued per household.

Appendix B. Glossary of Terms

Amount Reasonably Necessary for Subsistence (ANS) - Once the Board of Fisheries or Board of Game has determined that there are customary and traditional uses of a fish stock or game population, they must set the amount reasonably necessary for subsistence uses, keeping in mind the sustained yield principle. This is often referred to as the "ANS."

Any Bull – Moose that do not meet general season antler restrictions, which are spike/for, or 50" antlers, or 4 or more brow tines.

Customary and Traditional (C&T) – The non-commercial, long-term, and consistent taking of, use of, and reliance upon fish or game in a specific area and the use patterns of that fish or game that have been established over a reasonable period of time taking into consideration the availability of the fish and game

Madison Decision – In February 1985, the Madison decision challenged the rural priority. The revised statute embedded the rural priority in law rather than simply in policy, and defined rural areas as places where subsistence uses are 'a principal characteristic of the community or area'. The state boards of fisheries and game were authorized to use special criteria to determine which uses of fish and wildlife qualify as subsistence uses. It required that the boards to identify specific fish stocks and game populations used for subsistence. Subsistence would be regulated, but the court also mandated that subsistence regulations give rural residents a reasonable opportunity to maintain their lifestyle.

Manning Decision – In July 2010, Alaska's Supreme Court found the CSH to be a local-residency based hunt, which violates sections 3, 15, and 17 of article VIII of the Alaska Constitution. Additionally, the court found that Alaska Statue [AS 16.05.330(c)] does not authorize the BOG to delegate hunt administration to a private individual or entity. Since this ruling, rural preferences and Ahtna's role in administering the hunt were removed.

McDowell Decision - In December 1989, the Alaska Supreme Court ruled in the McDowell Decision (Alaska 1989) that Alaska's subsistence law granting a priority based solely on residency is inconsistent with the "common use" clause and other sections of article VIII of the Alaska Constitution. The ruling placed the state out of compliance with ANILCA and consequently in 1990 federal agencies adopted separate subsistence hunting regulations. A dual management structure began with the federal government regulating subsistence on federal lands and the state retaining authority over state and private lands (which consist primarily of Alaska Native lands).

Tier I Permits – A subsistence permitting system that is used when it is anticipated that a reasonable opportunity can be provided to all residents who desire to engage in that subsistence use, so everyone is issued a permit.

Tier II Permits – A subsistence permitting system used when it is anticipated that a reasonable opportunity to engage in the subsistence uses cannot be provided to all eligible residents, and application are scored to determine who is eligible for the limited number of permits.